

## SUPPLEMENT TO A REVISION OF THE MELANOPLI.

BY SAMUEL H. SCUDDER.

Since the publication a year ago of my Revision of the Melanopli (Proc. U. S. Nat. Mus., XX, 1-421, pl. 1-26), and in part, at least, in consequence of it, a considerable number of new forms have been discovered. In some cases these require considerable modification of the tables there prepared for the determination of the different species, especially in the genus *Melanoplus*, to which all but two of the new species belong. I have thought it advisable, therefore, to bring the descriptions of the new forms together and to introduce such alterations in the different tables as will enable one to place any of the new forms (both those here described and those described by others this year) as easily as the old.

Most of the species here described were obtained by the careful collecting of Mr. A. P. Morse along the Pacific coast from southern California to northern Oregon, in the summer of 1897. Of these Mr. Morse has given me the full use. The others are principally due to the efforts of Mr. C. F. Baker, Dr. J. L. Hancock and Prof. Otto Lugger, to whom I am indebted for their forwarding of material.

I follow in this paper the order of my Revision, to which I have constantly to refer.

### PODISMA Latreille.

In an interesting paper on "The Grasshoppers and Locusts of New Zealand and the Kermadec Islands" (Trans. N. Zeal. Inst., XXX., 135-150, pl. 14, 1897), Capt. F. W. Hutton describes four species which he refers to the genus *Pezotettix* Burm. (= *Podisma* Latr.). This is the first reference of the genus to the southern hemisphere, Japan being the nearest country in which the genus was known; but I think it a mistaken reference. I have not seen any specimens of the species described by him, but he has kindly sent me some of the genera he

regards as allied, and from these and his descriptions and figures I should judge that all belonged to the gerontogeic Calopteni, rather than to the Melanopli. It is at least pretty certain that they do not belong to Podisma.

Among the more interesting of the Acridiidae obtained in Oregon in the summer of 1897 by Mr. A. P. Morse was an apterous species of Podisma, the apterous section of the genus having heretofore been known in America only from the extreme east. The table in my Revision (p. 97) may be thus recast, so far as the apterous species are concerned, to accommodate the new form :

TABLE OF THE APTEROUS NORTH AMERICAN SPECIES OF PODISMA.

*a*<sup>1</sup>. Smaller species. Hind tibiae green or greenish; lower apical angle of male cerci angulate, but not decurved.

*b*<sup>1</sup>. Hind femora conspicuously fasciate with fuscous; cerci very slender, in the middle distinctly less than half as broad as the base.

*variegata* Scudd.

*b*<sup>2</sup>. Hind femora almost uniformly green; cerci relatively stout, in the middle distinctly more than half as broad as the base. . . . *glacialis* Scudd.

*a*<sup>2</sup>. Larger species. Hind tibiae yellowish (♂) or reddish (♀); lower apical angle of male cerci distinctly produced and decurved. . . . *polita* sp. nov.

*Podisma polita* sp. nov.

Plate VII., Figures 1, 2.

Dark olivaceous green, more or less flavous beneath (♂), or testaceo-olivaceous, so heavily flecked and punctate with fuscous as to appear griseous, pale testaceous beneath (♀), the sides with a broad, postocular, piceous band extending across the pronotum, enlarged upon the metazona and continued as a fuscous or piceous belt backward nearly to the end of the abdomen, at least in the male. Head olivaceo-testaceous, more or less heavily or lightly flecked with fuscous, heavily on summit, the postocular band edged narrowly above with testaceous; vertex slightly tumid, scarcely elevated above the pronotum, the interspace between the eyes twice (♂) or fully twice (♀) as broad as the first antennal joint; fastigium considerably declivent, scarcely arcuate, lying wholly below (♂) or at (♀) the upper level of the eyes, so as not to be wholly seen on a side view, slightly (♂) or scarcely (♀) sulcate, angularly expanded laterally in front; frontal costa percurrent, subequal, faintly expanded between the antennæ as seen from in front, a little (♂) or distinctly (♀) narrower than the

interspace between the eyes, a little sulcate except, perhaps, above, sparsely biserially punctate above; eyes rather small, prominent in the male, scarcely (♀) or fully (♂) as long as the infraocular portion of the genæ; antennæ testaceous, more or less infuscated apically and lutescent basally, often more or less rufous, about four-fifths (♂) or two-thirds (♀) as long as the hind femora. Pronotum enlarging slightly on the posterior half, especially in the female, the disk olivaceous (♂) or olivaceo-testaceous most heavily punctate with fuscous (♀), convex and passing insensibly into the vertical lateral lobes, which are pale flavo-testaceous below, the piceous stripe with a concave lower margin; median carina slight, percurrent, subequal; front and hind margins truncate; prozona feebly longitudinal (♂) or quadrate (♀), punctate anteriorly and posteriorly (♂) or equally throughout (♀), almost twice as long as the punctate metazona. Prosternal spine blunt, conical, short, especially in the female; interspace between mesosternal lobes a little transverse and nearly as broad as the lobes (♂) or almost twice as broad as long and fully as broad as the lobes (♀), the metasternal lobes subapproximate (♂) or nearly as distant as the mesosternal lobes (♀). Tegmina wanting. Fore and middle femora considerably tumid in the male, olivaceo-testaceous, more or less infuscated; hind femora slender, testaceous (♀) or olivaceo-testaceous (♂) more or less infuscated in faint bifasciate clouds, beneath (and within at base) bright red, the geniculation blackish fuscous; hind tibiae luteous (♂) or reddish (♀), the spines black in the apical half, 9-10 in number in the outer series. Abdomen hardly (♂) or distinctly (♀) compressed, carinate, either dull olivaceo-testaceous, very heavily punctate with fuscous above, lighter below, the margins of the segments reddish (♀), or olivaceous, more or less infuscated above, flavo-olivaceous below, the sides more or less piceous except apically (♂); sides of the first segment with a distinct tympanum; the extremity in the male clavate, considerably recurved, the supraanal plate triangular with feebly acutangulate and in no way blunted apex, the margins a little elevated flaringly in the basal two-thirds, the median sulcus confined to the basal half, distinct, between well-rounded walls; furcula consisting of a pair of approximate, feebly divaricating, slender, hardly tapering, blunt, dark castaneous spines, extending over the supraanal plate by about twice the width of the last dorsal segment; cerci long and rather slender, erect, testaceous at base, becoming gradually infuscated apically, tapering in the basal half to about two-thirds the basal breadth, beyond equal as far

as the slightly expanded tip, which is incurved and has the lower apical angle produced to an acutangulate apex, which is also slightly decurved, the whole almost as long as the supraanal plate; subgenital plate a little bullate, short and broad, the upper margins in the same plane, broadly rounded as seen from above, entire, the apical face with a bluntly conical, moderate, submarginal tubercle.

Length of body, ♂, 19.5 mm; ♀, 23.5 mm.; antennæ, ♂, 9.25 mm.; ♀, 8 mm.; hind femora, ♂, 11.5 mm.; ♀, 12 mm.

19 ♂, 8 ♀. Divide (Cottage Grove) Lane Co., Oregon, Sept. 12, A. P. Morse.

This species is more nearly related to *P. glacialis* than to *P. variegata*, differing from the former most noticeably in the color of the hind femora and tibiæ, and in its relatively longer male cerci with their decurved tip.

#### MELANOPLUS Stål.

As already stated, all the new Melanopli that have been noted, with two exceptions, belong to this dominant genus. They will be brought under the several series to which they belong, and the tables for the determination of the species remodeled to introduce them. The number of species is now increased to upward of one hundred and fifty, thus surpassing all other North American genera of Orthoptera, but no new series are required to accommodate the additions, most of which are brachypterous.

#### FLABELLIFER Series.

A single Californian species is added to this series, its nearest neighbor being another Californian form, from which it may be separated by the following table of the short-winged species of this series, in modification of that given on pp. 124-125 of my Revision.

TABLE OF THE BRACHYPTEROUS SPECIES IN THE FLABELLIFER SERIES OF MELANOPLUS.

- a*<sup>1</sup>. Tegmina about half as long as the abdomen and much longer than the pronotum..... *discolor* Scudd., *simplex* Scudd.\*
- a*<sup>2</sup>. Tegmina shorter than the pronotum.
- b*<sup>1</sup>. Furcula of male only as long as the last dorsal segment; cerci in apical half equal and deeply sulcate longitudinally, so as to appear bent at right angles..... *rileyanus* McNeill.
- b*<sup>2</sup>. Furcula of male one-fifth as long as supraanal plate; cerci in apical half tapering, not sulcate..... *blandus* sp. nov.

\* For separation of these species, see original table.

*Melanoplus blandus* sp. nov.

## Plate VII., Figure 3.

Dark brownish testaceous above, luteo-testaceous beneath, with a moderately narrow, postocular, piceous stripe crossing the prozona and sometimes in a diluted form the metazona. Head rather prominent, testaceous, heavily flecked and dotted with fuscous, especially above, the postocular band edged with luteo-testaceous; vertex well rounded, a little elevated above the pronotum, the interspace between the eyes scarcely or not broader than the first antennal joint; fastigium strongly declivent, deeply sulcate; frontal costa failing to reach the clypeus, subequal, slightly broader than the interspace between the eyes, feebly sulcate, strongly punctate throughout, biserially above; eyes rather large and rather prominent, fully half as long again as the infraocular portion of the genæ; antennæ luteo-castaneous, a trifle infuscated apically, about two-thirds as long as the hind femora. Pronotum subequal, dull testaceous more or less punctate with fuscous, the lower portion of the lateral lobes lutescent, the disk gently convex and passing by a rounded shoulder, a little more abrupt on the metazona than on the prozona, into the vertical, anteriorly tumid lateral lobes; front margin subtruncate, hind margin very obtusangulate, the angle sometimes rounded; median carina percurrent, most distinct on the metazona, least distinct between the sulci; prozona distinctly longitudinal, a fourth to a third longer than the distinctly punctate metazona. Prosternal spine small, distinctly conical, erect, bluntly pointed; interspace between mesosternal lobes about half as long again as broad, the metasternal lobes subattinent. Tegmina shorter than the pronotum, attinent, broadly ovate, apically rounded, but feebly angulate, blackish fuscous, excepting the anal area which is testaceous. Fore and middle femora feebly tumid, testaceous, more or less infuscated; hind femora testaceous, distinctly and obliquely bifasciate above with blackish fuscous, beneath rufescent, the geniculation infuscated; hind tibiae dull glaucous, often lutescent basally, with a fuscous annulation, the spines black except at base, 10-11 in number in the outer series. Extremity of abdomen a little clavate and upturned, the supraanal plate subtriangular with subrectangulate apex, the median sulcus percurrent, broad and bounded by rather high ridges on basal half, slender with slight margins on apical half; furcula consisting of a pair of slender, tapering, parallel, blunt-pointed

fingers, extending over the basal fifth of the supraanal plate; cerci broad, laminate, torquate, broadening on the basal third, where they are about two-thirds as broad as the hind femoral geniculation, then at once and regularly narrowing to half that width almost wholly by the excision of the lower margin, the apical portion strongly incurved, turned over the lip of the scoop formed by the subgenital plate, and twisted, but not abruptly, at right angles to the basal portion, the apex rounded, the upper margin nearly in one plane throughout but strongly arcuate; subgenital plate broad and nearly equal, especially where uniting with the lateral margins, the whole flaring faintly along the upper margin.

Length of body, 15 mm.; antennæ, 6.5 mm.; tegmina, 3 mm.; hind femora, 9.5 mm.

7 ♂. Summit of Mt. Wilson, Altadena, Los Angeles County, California, July 28, A. P. Morse.

This species is closely allied to *M. rileyanus*, found at lower levels in Los Angeles County, but differs from it in the longer furcula, and in the anal cerci, which are not equal in the apical half nor externally sulcate, so as to appear longitudinally bent at right angles, as in *M. rileyanus*.

#### BOWDITCHI SERIES.

Prof. C. F. Baker has sent me from Colorado a single specimen of a species of this series, which differs clearly from the others in the elevation and notching of the apical margin of the subgenital plate in the male. In order to bring it next its nearest ally, *M. bowditchi*, the table for the determination of the species in this series, as given in my Revision (p. 131), needs to be slightly remodelled, as follows:

##### TABLE OF THE SPECIES IN THE BOWDITCHI SERIES OF MELANOPLUS.

- a*<sup>1</sup>. Subgenital plate of male distinctly elevated apically above the lateral margins, and notched.....*incisus* sp. nov.
- a*<sup>2</sup>. Subgenital plate of male not or hardly elevated apically above the lateral margins, and entire.
- b*<sup>1</sup>. Body, tegmina and legs brown or testaceous, the hind femora generally banded with dark colors.
- c*<sup>1</sup>. Forks of the male furcula more or less obliquely or transversely truncate at tip and given an oppositely hooked appearance by the rounded excision of the inner margin; hind femora generally distinctly banded.
- d*<sup>1</sup>. Rather uniform in coloring, the lateral lobes with no bright

stripe; male cerci in no way expanded apically, and externally tumid rather than sulcate.

*e*<sup>1</sup>. Lateral lobes of prozona with a broad and usually distinct piceous band above; tegmina generally distinctly flecked along the middle line ..... *bowditchi* Scudd.

*e*<sup>2</sup>. Lateral lobes of prozona with a narrow or no distinct band above; tegmina very obscurely flecked, if at all, along the middle line ..... *flavidus* Scudd.

*d*<sub>2</sub>. Highly variegated, the lateral lobes of pronotum conspicuously marked with an unequal bright flavous stripe next the lateral carinæ; male cerci very feebly expanded and externally sulcate apically.

*pictus* Brun.

*c*<sub>2</sub>. Forks of the male furcula rounded symmetrically at tip, the inner margin scarcely more excised than the outer, so that the forks are straight and not oppositely hooked; bands of hind femora scarcely perceptible..... *elongatus* Scudd.

*b*<sub>2</sub>. Body, tegmina and legs almost wholly green, the hind femora not banded.

*c*<sub>1</sub>. Disk of pronotum and summit of head uniform in coloration, the former passing into the lateral lobes with a more distinct angle than in the alternate category; hind tibiæ blue; antennæ uniform.

*flavescens* Scudd.

*c*<sub>2</sub>. Sides of the disk of the prozona with a distinct narrow yellow stripe, extending to the upper margin of the eyes; passage of the disk of the pronotum into the lateral lobes more gradual than in the alternate category; hind tibiæ green; antennæ apically infuscated.

*herbaceus* Brun.

### *Melanoplus incisus* sp. nov.

Of pretty large size, fuscous marked with flavous, the darkest parts being a broad postocular stripe which extends to but not upon the metazona and a slightly narrower glistening stripe at the outer margin of the disk of the pronotum; beneath it is almost wholly flavous. Head more or less infuscated throughout, but especially above, though there is a dull flavous median vertical streak, and the upper margins of the postocular band are bordered with the same; vertex gently tumid, the interspace between the eyes about equalling the width of the frontal costa, the fastigium broadly and rather deeply sulcate; frontal costa moderate in breadth, subequal but a little narrowed above the ocellus, biserially punctate above; eyes rather large and rather prominent; antennæ almost as long as the hind femora, fusco-flavous. Pronotum subequal, feebly enlarging at the metazona, the front margin truncate, the hind margin very obtusely angulate, the

angle rounded, the disk gently convex on the prozona with no lateral carinæ, on the metazona plane with obscure rounded lateral carinæ; median carina slight though distinct and infuscated on the metazona, and less so on the front portion of the prozona; prozona barely longitudinal, smooth, but slightly longer than the feebly and rather sparsely punctate metazona. Prosternal spine moderate, compressed conical, blunt; interspace between mesosternal lobes narrow, at least four times as long as broad, but gradually broadening in posterior half, the metasternal lobes attingent over a long space. Tegmina slender, gently tapering throughout, apically rounded, surpassing a little the hind femora, pale fuscous, immaculate; wings pellucid, with a scarcely perceptible flavous tinge, the posterior veins pale glaucous. Fore and middle femora testaceous; hind femora fuscous on the outer face, tinged apically with blue, elsewhere flavous or orange flavous twice barred above with fuscous, the genicular lobes pallid with a basal fuscous spot, the genicular arc heavily infuscated; hind tibiæ dark glaucous, pallescent at extreme base, the spines pale glaucous with blackish fuscous tips, 10-11 in number in the outer series. Extremity of abdomen feebly clavate, upturned, the supraanal plate obscurely clypeate, the lateral and apical margins a little and broadly raised, the median sulcus obsolete; furcula consisting of a pair of strongly flattened, straight, parallel plates, broad and attingent in basal half, each suddenly narrowing to half its former width by the rounded excision of its inner margin, the apex broadly rounded and reaching beyond the middle of the underlying plate; cerci rather small, tapering to a little more than half their extreme width in the basal half, when each is bent slightly inward, thereafter continues equal to the blunt and rounded tip, which fails considerably to reach the tip of the supraanal plate; subgenital plate forming a well-rounded scoop, the apical margin of which is distinctly elevated and bluntly notched, and notwithstanding this elevation considerably narrower apically than at base.

Length of body, 25 mm.; antennæ, *c.* 13 mm.; tegmina, 22 mm.; hind femora, 14.5 mm.

1 ♂. Fort Collins, Larimer County, Colorado, August 11, C. F. Baker.

This species is separable from all others of the Bowditchi series by the elevation of the apical margin of the subgenital plate of the male; it bears the closest general resemblance to *M. bowditchi*.



## INDIGENS SERIES.

I am inclined to place here an interesting species\* sent to me by Dr. Hancock from the mountains of Arizona, although it differs considerably from the single species formerly placed here and will require some modification of the characters given to the series in my former table (Revision, p. 125), and in the text (p. 210), in that the anal cerci, though broad and long and subequal, do narrow considerably in the basal half, and in the middle are distinctly narrower than the frontal costa, and are incurved and apically angulate, while the apical margin of the subgenital plate is not elevated to a blunt tubercle; furthermore its abdomen is distinctly clavate at tip and the supraanal plate does not have the lateral margins mesially notched. The points of distinction between the two species may be tabulated thus:

## TABLE OF THE SPECIES IN THE INDIGENS SERIES OF MELANOPLUS.

- $\alpha^1$ . Tegmina slightly distant ( $\sigma^7$ ); abdomen of male hardly clavate at apex; supraanal plate with lateral margins mesially notched; cerci straight, scarcely tapering in basal half, broader than the frontal costa, apically rounded or subangulate; subgenital plate considerably elevated apically into a slight rounded tubercle.....*indigens* Scudd.
- $\alpha^2$ . Tegmina attingent ( $\sigma^7$ ) or subattingent ( $\varphi$ ); abdomen of male distinctly clavate; lateral margins of supraanal plate entire; cerci incurved, tapering distinctly in basal half, narrower than the frontal costa, apically produced and angulate; subgenital plate with the apical and lateral margins in the same plane, without tubercle.....*femur-nigrum* sp. nov.

## MELANOPLUS FEMUR-NIGRUM sp. nov.

## Plate VII., Figure 4.

About or rather below the medium size, dark fuscous above, pale flavous beneath and with pale flavous markings, conspicuous in a stripe following the lower margin of the outer face of the hind femora, and an oblique metapleural stripe. Head not prominent, plumbeo-testaceous infuscated above, the vertex gently convex, slightly elevated above the pronotum, the interspace between the eyes fully as wide as ( $\sigma^7$ ) or considerably wider than ( $\varphi$ ) the first antennal joint; fastigium steeply declivent, distinctly sulcate, at least in the male; frontal costa sub-

\* I am not able at the moment to compare this directly with the species on which the series was founded.

equal, almost percurrent, about as wide as the interspace between the eyes, sulcate throughout ( $\sigma$ ) or below the ocellus ( $\varphi$ ), biserially and irregularly punctate throughout; eyes not very large nor very prominent, but distinctly longer than the infraocular portion of the genæ; antennæ varying from luteous to castaneous, more or less infuscated apically, about as long ( $\sigma$ ) as the hind femora. Pronotum fuscous, with a broad, piceous, postocular band on the prozona (below which the lateral lobes, at least on the prozona, approach the color of the under surface, and next which the disk is feebly pallescent), enlarging feebly and regularly from in front backward, especially in the female; disk feebly convex, passing by a feeble angulation into the subvertical lateral lobes; median carina percurrent, but feebler though uniform on the prozona; front margin truncate, hind margin feebly and roundly angulate; prozona a little longitudinal ( $\sigma$ ) or longitudinally subquadrate ( $\varphi$ ), nearly a third longer than the finely and obscurely punctate metazona. Prosternal spine short, erect, very blunt conico-cylindrical; interspace between mesosternal lobes subquadrate ( $\sigma$ ) or distinctly transverse ( $\varphi$ ), the metasternal lobes approximate ( $\sigma$ ) or rather distant ( $\varphi$ ). Tegmina abbreviate, a little shorter than the pronotum, ovate, less than twice as long as broad, attingent ( $\sigma$ ) or subattingent ( $\varphi$ ), dark fuscous or blackish fuscous, the apex rounded angulate. Fore and middle femora somewhat tumid in the male; hind femora blackish fuscous above, the outer face nearly black, with the stripe mentioned, pale orange beneath with a pale, pregenicular semi-annulus on the inner side; hind tibiæ blue, the spines black, 10-11 in number in the outer series. Abdomen pale flavous, a little infuscated above and the sides piceous basally, the extremity in the male considerably clavate and considerably recurved, the supraanal plate broad hastate, nearly plane, with acutangulate apex and shallow, rather broad, percurrent median sulcus, margined by low blunt walls; furcula consisting of a pair of slight dentiform projections, slightly divaricating and extending beyond the last dorsal segment by less than its length; cerci moderately stout laminæ, tapering gently in the basal half and straight, then equal for a short distance and slightly incurved, and then tapering rapidly and curving strongly inward to a terminal hook which just fails to reach the tip of the supraanal plate; subgenital plate small, flaring a little, of equal breadth and almost as long as its apical breadth, the lateral and apical margins in the same plane, a little angulated where they meet.

Length of body, ♂, 15.5 mm., ♀, 19.5 mm.; antennæ, ♂, 9 mm., ♀, 8 mm.; tegmina, ♂ ♀, 4.25 mm.; hind femora, ♂, 9.75 mm.

13 ♂, 1 ♀. San Francisco Mts. near Flagstaff, Coconino Co., Arizona, July 30, Dr. J. L. Hancock.

#### MANCUS SERIES.

The number of species belonging here has been nearly doubled by the discoveries of the past year, compelling a complete remodelling of the table (Revision, pp. 125-126) of the species of this series. More than one of the species have the apical margin of the subgenital plate slightly elevated, so that characters drawn from this part will not serve to distinguish it from the Indigenes Series, particularly if we are to add to that series the species just described, without apical elevation to its plate.

#### TABLE OF THE SPECIES IN THE MANCUS SERIES OF MELANOPLUS.

*a*<sup>1</sup>. Prozona, at least in male, much longer than broad, the disk of the whole pronotum distinctly more than twice as long as middle breadth; interspace between mesosternal lobes of male twice or almost twice as long as broad.

*b*<sup>1</sup>. Antennæ of male about two-thirds as long as hind femora; hind margin of pronotum subtruncate or almost subtruncate; cerci of male more or less twisted as well as incurved.

*c*<sup>1</sup>. Hind tibiæ blue; furcula of male prominent; cerci considerably torquate, deeply sulcate exteriorly in apical half, which is but little narrower than the basal half, and not bent upward; apical margin of subgenital plate slightly elevated, well rounded as seen from above

*varicus* sp. nov.

*c*<sup>2</sup>. Hind tibiæ red; furcula of male slight; cerci only slightly torquate and shallowly sulcate, the apical half much narrower than the basal, and bent upward; apical margin of subgenital plate not elevated, angulate as seen from above..... *immunis* sp. nov.

*b*<sup>2</sup>. Antennæ of male five-sixths as long as hind femora; hind margin of pronotum distinctly obtusangulate; cerci of male throughout in nearly one obliquely vertical plane, though incurved..... *scudderi* Uhler

*a*<sup>2</sup>. Prozona, even in male, transverse, subquadrate or slightly longitudinal, the disk of the whole pronotum less than twice as long as middle breadth; interspace between mesosternal lobes of male not or scarcely more than half as long again as broad.

*b*<sup>1</sup>. Male cerci of subequal width, the apical being scarcely narrower than the basal half.

*c*<sup>1</sup>. Male abdomen strongly recurved; forks of furcula divergent, dis-

tinctly longer than the last dorsal segment ; subgenital plate with no apical tubercle.....*gillettei* Scudd.

*c*<sup>2</sup>. Male abdomen scarcely recurved ; forks of furcula parallel, minute, hardly as long as the last dorsal segment ; subgenital plate with a slight apical tubercle.....*artemisiae* Brun.

*b*<sup>2</sup>. Male cerci of distinctly unequal width.

*c*<sup>1</sup>. Male cerci tapering only in basal half, the apical half subequal, apically rounded ; furcula distinct though slight.

*d*<sup>1</sup>. Pronotum subtruncate posteriorly ; tegmina shorter than the pronotum, broadly rounded or subangulate at apex ; male cerci long and rather slender, nearly straight as seen laterally...*manicus* Smith.

*d*<sup>2</sup>. Pronotum obtusangulate posteriorly ; tegmina as long as or longer than the pronotum, apically acuminate ; male cerci short and not very slender, rather strongly bent-arcuate as seen laterally.

*e*<sup>1</sup>. Tegmina of male considerably longer than pronotum ; furcula considerably longer than the last dorsal segment ; apical margin of subgenital plate slightly elevated, well rounded, in no way tuberculate .....*acutus* sp. nov.

*e*<sup>2</sup>. Tegmina of male scarcely if at all longer than pronotum ; furcula no longer than last dorsal segment ; apical margin of subgenital plate feebly elevated to a slight tubercle.....*cancris* Scudd.

*e*<sup>2</sup>. Male cerci nearly equal in basal half, tapering regularly in the apical half, apically acuminate ; furcula subobsolete....*usitatus* sp. nov.

*Melanoplus varicus* sp. nov.

Plate VII., Figures 5, 6.

Of small size, fusco-testaceous above, pallid testaceous beneath, with a broad piceous or subpiceous postocular band crossing the head and prozona. Head not prominent, or but slightly so, pallid testaceous, more or less flecked with fuscous, especially above, the postocular band distinctly margined above and generally below with flavo testaceous ; vertex tumid, elevated distinctly above the pronotum, the interspace between the eyes fully as broad as (♂) or half as broad again as (♀) the first antennal joint ; fastigium steeply declivent, sulcate ; frontal costa subequal, just failing to reach the clypeus, fully as broad as the interspace between the eyes, faintly sulcate below the ocellus, irregularly punctate above ; eyes moderately large and rather prominent, much longer than the infraocular portion of the genæ ; antennæ testaceous, apically slightly infuscated, fully two-thirds (♂) or less than one-half (♀) as long as the hind femora. Pronotum subequal but faintly expanding on the metazona, fusco-testaceous or pale

testaceous flecked with fuscous on the disk, which is broadly convex, passing by a rounded but still distinct shoulder into the lateral lobes, where each half of the prozona but especially the anterior half is feebly and independently tumid; median carina distinct and percurrent, more distinct on the metazona, sometimes obsolescent between the sulci; front margin faintly convex, hind margin feebly angulate; prozona longitudinal, about a third as long again as the more distinctly and more finely punctate metazona. Prosternal spine short, erect, blunt conical; interspace between mesosternal lobes nearly three times as long as broad (♂) or quadrate (♀), the metasternal lobes subattinent (♂) or approximate (♀). Tegmina abbreviate, a little shorter than the pronotum, attinent, broad ovate, apically subangulate, fusco-testaceous, pale testaceous in the anal field, which is thus slightly contrasted. Fore and middle femora feebly tumid in the male; hind femora moderately slender, testaceous, broadly and obliquely bifasciate with fuscous, sometimes blended on the outer face, ferruginous beneath, the geniculation fuscous; hind tibiæ blue, often more or less testaceous at base, with a narrow black postgenicular annulus, the spines black, 10-11 in number in the outer series. Abdomen testaceous, subflavous beneath, the sides more or less piceous, the extremity in the male a little clavate, slightly recurved, the supraanal plate triangular with scarcely elevated margins, the median sulcus moderately coarse, percurrent, between distinct walls considerably elevated basally; furcula consisting of a pair of flattened, tapering, acuminate fingers, diverging at right angles and nearly a third as long as the supraanal plate; cerci forming moderately broad, gently tapering, compressed laminae, less than three times as long as middle breadth, two-thirds as broad apically as basally, the apex broadly convex and the apical half gently incurved and externally rather deeply sulcate; subgenital plate small, of nearly equal length and breadth, the apical margin slightly elevated, thickened and entire.

Length of body, ♂, 16.5 mm., ♀, 20 mm.; antennæ, ♂, 6.25 mm., ♀, 6 mm.; tegmina, ♂, 3.25 mm., ♀, 5 mm.; hind femora, ♂, 9 mm., ♀, 11 mm.

14 ♂, 6 ♀. Tehachapi, Kern Co., California, August 2, A. P. Morse.

This species is very distinct from any other by the considerable twist and deep sulcation of the male cerci.

*Melanoplus immunis* sp. nov.

Of small size and moderately slender, very dark fuscous, ferrugineo-testaceous beneath, with a broad postocular piceous band reaching across the prozona. Head not at all prominent, ferrugineo-testaceous, much infuscated above, the postocular band narrowly edged above with testaceous or ferruginous, at least in the female; vertex gently tumid, feebly elevated above the pronotum, the interspace between the eyes nearly twice as wide as the first antennal joint, especially in the female; fastigium rather steeply declivent, broadly and shallowly sulcate; frontal costa almost or quite percurrent, subequal but faintly narrowed above, somewhat narrower than the interspace between the eyes, feebly sulcate or depressed at the ocellus, biserially punctate above; eyes moderate, scarcely more prominent in the male than in the female, a little longer than the infraocular portion of the genæ; antennæ fusco-rufous, about two-thirds (♂) or three-fifths (♀) as long as the hind femora. Pronotum subequal but expanding a little on the metazona, dark fuscous, ferrugineo-testaceous below the postocular band, the disk gently convex and passing by a more or less distinct angulation, forming tolerably well pronounced lateral carinæ in the male, into the vertical lateral lobes; median carina feeble on the prozona, distinct on the metazona; front and hind margins subtruncate; prozona slightly longitudinal (♂) or quadrate (♀), a half longer than the obscurely punctate metazona. Prosternal spine rather large, erect, subconical (♂) or appressed cylindrical (♀), blunt; interspace between mesosternal lobes quadrate or a little transverse (♂) or distinctly transverse (♀), the metasternal lobes subattinent (♂) or rather distant (♀). Tegmina nearly (♂) or about (♀) as long as the pronotum, attinent, obovate, apically rounded, less than twice as long as broad, fuscous. Fore and middle femora slightly tumid in the male, ferruginous, more or less infuscated; hind femora slender, ferrugineo-testaceous, more or less heavily tinged above with fuscous, beneath flavescent; hind tibiæ dull pale ferruginous, more or less lutescent, the spines almost wholly black, 10 (♂) or 11 (♀) in number in the outer series. Extremity of male abdomen clavate, a little recurved, the supraanal plate simple, triangular, a little acutangulate, pointed, the surface nearly plane but feebly tectate with a deep median sulcus in the basal half; furcula consisting of a pair of slender parallel thorns projecting over the supraanal plate on either side of the median sulcus by no more than the length of the last dorsal segment; cerci

lamellate and rather small, as broad at base as the narrowest part of the frontal costa, narrowing but feebly and straight in the basal half, beyond bent a little upward, incurved, and tapering more distinctly to a bluntly angulate tip, and at the same time faintly torqate and externally sulcate, the lower margin of the apical half straight, the whole falling considerably short of the tip of the supraanal plate; subgenital plate not very large, as a whole forming a pyramidal tubercle, almost as broad apically as long, the margins meeting angularly at the apex of the pyramid.

Length of body, ♂, 16 mm., ♀, 18 mm.; antennæ, ♂, 6.25? mm., ♀, 6 mm.; tegmina, ♂, 35 mm., ♀, 4 mm.; hind femora, ♂, 9.5 mm., ♀, 10.5 mm.

2 ♂, 1 ♀. Mary's Peak, Benton Co., Oregon, Sept, 16, A. P. Morse.

This species is most nearly allied to *M. scudderi* of the east, differing from it in the shorter antennæ and tegmina, the posteriorly subtruncate pronotum, the more curved and slightly torqate male cerci, and the acutely pyramidal subgenital plate.

*Melanoplus acutus* sp. nov.

Of small size, fusco-testaceous, flavous beneath, with a very broad fusco-piceous postocular band, at least in the male, crossing the prozona. Head not prominent, flavous or plumbeo-olivaceous, fusco-testaceous above; vertex gently tumid, scarcely elevated above the pronotum, the interspace between the eyes about half as broad again (♂) or nearly twice as broad (♀) as the basal joint of the antennæ; fastigium steeply declivent, considerably (♂) or slightly (♀) sulcate; frontal costa failing to reach the clypeus, subequal, fully as broad as the interspace between the eyes, depressed at the ocellus, biserially punctate above; eyes moderate, very little prominent in the male, much longer than the infraocular portion of the genæ; antennæ rufous, in the female two-thirds as long as the hind femora. Pronotum subequal, fusco-testaceous, pallid below the postocular band, the disk gently convex, passing by a distinct though well rounded shoulder into the vertical lateral lobes, which are tumid on the prozona; median carina distinct, percurrent, and either equal (♀) or subdued between the sulci (♂); front margin gently convex, in the male faintly and mesially emarginate, hind margin very broadly obtusangulate, the angle sometimes rounded; prozona longitudinally quadrate (♂) or

quadrate (♀), a half longer than the finely punctate metazona. Prosternal spine erect, cylindroconical, very blunt; interspace between mesosternal lobes fully half as long again as broad (♂) or scarcely longer than broad (♀), the metasternal lobes attingent (♂) or approximate (♀). Tegmina slightly longer than the pronotum, overlapping, apically acuminate, fusco-testaceous. Fore and middle femora somewhat tumid in the male, testaceous or fusco-testaceous; hind femora testaceous or flavo-testaceous, more or less obscurely bifasciate with fuscous, the inner and lower faces flavous, the geniculation infuscated; hind tibiæ red. the spines black in the apical half, 11-12, generally 11, in number in the outer series. Extremity of male abdomen clavate and considerably recurved, the supraanal plate triangular with acutangulate apex, the lateral margins thickened and elevated, especially in the basal half, the median sulcus rather broad and subequal, extending over the basal two-thirds; furcula consisting of a distinct fork, the arms forming a U, flattened, tapering, parallel and acuminate, crossing the basal third of the supraanal plate; cerci rather small, curved upward and scarcely inward, each formed of a compressed lamina, which tapers rapidly in the basal half to less than half the basal width, the apical half equal, apically rounded, outwardly feebly sulcate or rather dimpled; subgenital plate rather small, subconical, of equal length and width, the apical margin strongly rounded as seen from above, feebly elevated and entire.

Length of body, ♂, 14 mm, ♀, 18 mm.; antennæ, ♀, 6 mm.; tegmina, ♂, 4.5 mm., ♀, 5 mm.; hind femora, ♂♀, 9 mm.

2 ♂, 1 ♀. Brown's Valley, Traverse Co., Minnesota, Oct. 26, O. Lugger.

This species is closely allied to the geographically distant *M. cancri* of Cape St. Lucas, differing from it in the greater length of the tegmina and furcula, and in the form of the subgenital plate; other distinctions would doubtless appear if we possessed fresher specimens of the southern species.

*Melanoplus usitatus* sp. nov.

Of about medium size, fuscous, the male with a decided plumbeous tinge, dull flavous beneath. Head not prominent, dull olivaceous or pale testaceous, more or less heavily flecked with fuscous, especially in the female, fuscous above, with a broad postocular piceous band, sometimes edged above with pale testaceous; vertex gently convex, scarcely



elevated above the pronotum, the interspace between the eyes broad, twice ( $\sigma$ ) or more than twice ( $\varphi$ ) as broad as the first antennal joint; fastigium moderately declivent, hardly sulcate; frontal costa subequal, fading before the clypeus, a little narrower than the interspace between the eyes, depressed at the ocellus, irregularly punctate throughout; eyes moderate, a little prominent in the male, a little longer than the infraocular portion of the genæ; antennæ castaneous, luteous at extreme base (broken in the only specimens seen). Pronotum subequal ( $\sigma$ ) or distinctly and steadily enlarging posteriorly ( $\varphi$ ), fuscous, with a very broad postocular piceous band on the prozona, below which the lateral lobes are pale testaceous, the disk transversely convex, and on the prozona slightly tumid, at least in the male, passing by tolerably distinct but blunt lateral carinæ into the slightly tumid subvertical lateral lobes; median carina distinct, equal, percurrent ( $\sigma$ ) or obscure, subobsolete between the sulci ( $\varphi$ ); front and hind margins subtruncate; prozona distinctly longitudinal ( $\sigma$ ) or subquadrate ( $\varphi$ ), fully ( $\sigma$ ) or less than ( $\varphi$ ) a half longer than the scarcely punctate metazona. Prosternal spine rather short and stout, appressed, rounded conical, very blunt; interspace between mesosternal lobes nearly twice as long as broad ( $\sigma$ ) or transverse, as broad as the lobes ( $\varphi$ ), the metasternal lobes approximate ( $\sigma$ ) or rather distant ( $\varphi$ ). Tegmina nearly or quite as long as the pronotum, subattingent, at least in the male, subovate, nearly twice as long as broad, apically acuminate or subacuminate, fusco-testaceous. Fore and middle femora somewhat tumid in the male, flavous or testaceous, infuscated above (hind legs lost in specimens seen). Abdomen strongly carinate, the sides strongly infuscated, the extremity in the male a little clavate, slightly recurved, the supraanal plate triangular, the tip slightly acutangulate, the surface nearly plane, with a very shallow, regularly narrowing, percurrent median sulcus between slight walls; furcula consisting of very slight, depressed, a little divergent, triangular denticles; cerci rather coarse, subtriangular, about half as long again as basal breadth, the lower margin straight, the upper sinuous, the apex blunt acuminate and feebly incurved, the lower half of the apical half faintly sulcate externally; subgenital plate rather small, subpyramidal, of equal breadth throughout, slightly flaring and apically compressed to form a pyramidal tubercle.

Length of body,  $\sigma$ , 20 mm.,  $\varphi$ , 21.5 mm.; tegmina,  $\sigma$ , 5 mm.,  $\varphi$ , 6 mm.

1♂, 1♀. Corvallis, Benton Co., Oregon, May 23, June 9, A. B. Cordley (A. P. Morse).

Its peculiar cerci make the species an aberrant member of its series.

#### BORCKII SERIES.

The species described since the publication of my Revision, together with those here made known, double the number of forms belonging to this series and this necessitates a new arrangement of the material, though without much disturbance of the former table, since most of the species follow at the end of the previous list. They may be separated as follows:

##### TABLE OF THE SPECIES IN THE BORCKII SERIES OF MELANOPLUS.

*a*<sup>1</sup>. Subgenital plate of male more or less elevated posteriorly, with high basal margins, but with no distinct apical tubercle.

*b*<sup>1</sup>. Posterior margin of pronotum not mesially emarginate; tegmina attingent or approximate.

*c*<sup>1</sup>. Attenuated portion of male cerci hardly more than half as long as basal expanded tapering portion.

*d*<sup>1</sup>. Interspace between mesosternal lobes of female strongly transverse; lateral carinae of pronotum rounded so as to be subobsolete; postocular piceous band generally distinct, complete, percurrent.

*pacificus* Scudd.

*d*<sup>2</sup>. Interspace between mesosternal lobes of female subquadrate or feebly transverse; lateral carinae of pronotum distinct; postocular piceous band generally obsolete or wholly wanting, and, even when distinct, wholly confined to the prozona..... *borckii* Stål.

*c*<sup>2</sup>. Attenuated portion of male cerci nearly or quite as long as expanded basal portion..... *pinctus* sp. nov.

*b*<sup>2</sup>. Posterior margin of pronotum mesially emarginate; tegmina distant, lateral.

*c*<sup>1</sup>. Color testaceous with feeble or no postocular dark belt.

*tenuipennis* McNeill.

*c*<sup>2</sup>. Color dark fuscous with distinct and broad postocular band, at least in the male..... *missionum* Scudd.

*a*<sub>2</sub>. Subgenital plate of male distinctly tuberculate at tip, the basal margin not greatly elevated.

*b*<sup>1</sup>. Tegmina distinctly shorter than the pronotum, short ovate, attingent or approximate, rarely distant, apically well rounded.

*c*<sup>1</sup>. Hind tibiae blue; male cerci distinctly arcuate or sinuate.

*d*<sup>1</sup>. Tegmina more or less widely separated, rarely attingent; inter-

space between mesosternal lobes of male twice or nearly twice as long again as broad; cerci not finely acuminate at tip.

*fuscipes* McNeill

*d*<sup>2</sup>. Tegmina attingent; interspace between mesosternal lobes of male only slightly longer than broad; cerci tapering, rather regular, subfalcate, finely acuminate at tip..... *scitulus* Scudd.

*c*<sup>2</sup>. Hind tibiæ red; male cerci very simple and straight, hardly incurved.

*d*<sup>1</sup>. Slender forms. Male cerci equal and very slender in distal third or more, about one-third as broad as the extreme base.

*islandicus* Blatchl.

*d*<sup>2</sup>. Stouter forms. Male cerci very stout and broad, tapering throughout apical half and very bluntly rounded at apex.

*truncatus* sp. nov.

*b*<sup>2</sup>. Tegmina longer than the pronotum, elongate, overlapping or attingent, apically acuminate.

*c*<sup>1</sup>. Slender forms. Pronotum feebly angulate behind, the median carina percurrent, subequal; tegmina attingent, in one plane, no longer or scarcely longer than the pronotum; hind tibiæ green; interspace between mesosternal lobes of male twice as long as broad.

*phætalioformis* sp. nov.

*c*<sup>2</sup>. Stouter forms. Pronotum distinctly angulate behind, the median carina subobsolete between the sulci; tegmina overlapping, in two planes, one represented by the anal area, the other by the remainder, fully as long as, generally much longer than, the pronotum; interspace between mesosternal lobes of male quadrate or subquadrate.

*d*<sup>1</sup>. Male pronotum scarcely expanded on the metazona; tegmina but little longer than the pronotum; apical half of male cerci very slender, slenderer than the antennæ..... *incultus* sp. nov.

*d*<sup>2</sup>. Male pronotum considerably expanded on the metazona; tegmina fully half as long again as the pronotum; apical half of male cerci relatively stout, as large as the antennæ..... *huroni* Blatchl.

*Melanoplus pictus* sp. nov.

Plate VII., Figure 7.

Rather small, the female often considerably the larger, testaceous much marked with fuscous, dull flavous beneath. Head slightly prominent, at least in the male, flavo-testaceous, much and delicately mottled with pale fuscous, or above with darker fuscous, with a dark fuscous postocular stripe; vertex gently convex, faintly elevated above the pronotum, the interspace between the eyes as broad (♂) or nearly twice as broad (♀) as the first antennal joint; fastigium steeply

declivent, distinctly ( $\sigma^7$ ) or scarcely ( $\varphi$ ) sulcate; frontal costa fading far before the clypeus, subequal, fully as wide as the interspace between the eyes, depressed at the ocellus, punctate throughout; eyes, especially in the male, rather large and somewhat prominent, very much longer than the infraocular portion of the genæ; antennæ luteo-testaceous, sometimes castaneous, luteous toward the base, in both sexes about half as long as the hind femora. Pronotum subequal, short, in the female expanding a little on the metazona, the disk varying from fusco-testaceous to dark fuscous, edged laterally with pale testaceous, at least on the prozona, the lateral lobes with a more or less distinct, glistening fuscous, postocular band on the prozona, on the metazona becoming plain fuscous, sometimes in the female tinged with ferruginous, the lobes below pallid testaceous more or less dotted with fuscous or infuscated, and narrowly edged throughout with pallid testaceous; disk nearly plane, passing by a rounded shoulder, in the female forming faint blunt lateral carinæ, into the subvertical lateral lobes; median carina moderately distinct and coarse, subobsolete between the sulci; front and hind margins almost truncate; prozona feebly arched longitudinally, longitudinal, about a fourth or a fifth ( $\sigma^7$ ) or a third ( $\varphi$ ) longer than the rather heavily punctate metazona. Prosternal spine rather small, erect, conical, not very bluntly acuminate; interspace between mesosternal lobes more than twice ( $\sigma^7$ ) or less than half ( $\varphi$ ) as long again as broad, the metasternal lobes attinent ( $\sigma^7$ ) or approximate ( $\varphi$ ). Pleura piceous or fuscous with a pale flavous oblique stripe. Tegmina a little shorter than the pronotum, attinent or slightly overlapping, broad ovate, hardly angulate apically, much less than twice as long as broad, fusco-testaceous. Fore and middle femora somewhat tumid in the male, pale olivaceo-testaceous flecked with fuscous; hind femora rather slender, pale testaceous, confusedly trifasciate externally with blackish fuscous, pale orange beneath, the genicular arc fuscous; hind tibiæ blue, a little paler next the base and along the spiniferous margins (or at least the external one), the spines pallid on basal, fuscous on apical half, 9-10 in number in the outer series. Abdomen strongly carinate, pale testaceous, flavescens beneath, the sides more or less belted with piceous, the extremity in the male clavate, a little upturned, the supraanal plate triangular, acutangulate, nearly plane except for the somewhat prominent and sharp ridges which bound the percurrent median sulcus, and which suddenly divaricate basally; furcula consisting of a pair of hardly

noticeable attingent projections of the last dorsal segment; cerci tumid obpyriform, consisting of an ovate tapering basal bulb and an apical, scarcely tapering, blunt finger of equal length, the latter gently incurved and just failing to reach the tip of the supraanal plate; subgenital plate narrow and rather small, the lateral margin of each side elevated basally to twice the normal height to form a rounded lobe, and the apical margin elevated to form a lesser blunt triangular lobe as seen from behind.

Length of body, ♂, 15.5 mm., ♀, 21 mm.; antennæ, ♂, 5.5 mm., ♀, 7.5 mm.; tegmina, ♂, 4.25 mm., ♀, 5 mm.; hind femora, ♂, 10.5 mm., ♀, 14 mm.

7 ♂, 7 ♀. San Diego, July 22; Point Loma, July 23; and Coronado, San Diego Co., California, July 24, A. P. Morse.

This species is nearest the larger *M. borckii* and *M. pacificus*, differing mainly in the longer apical finger of the male cerci.

*Melanoplus islandicus.*

*Melanoplus islandicus* Blatchl.! Psyche, VIII., 196-197 (1898).

*Melanoplus abortivus* Walk.! Can. Ent., XXX., 90-92 (1898).

Described by Blatchley from Les Cheneaux Islands, Michigan, and by Walker from DeGrassi Point, Lake Simcoe, Ontario, and Aurora in the same province. Blatchley referred it to the Puer Series on my statement, but I was in error in supposing the cerci to be styliform and not to taper irregularly as they do. I introduce the species here to indicate its place in the series.

*Melanoplus truncatus* sp. nov.

Plate VII., Figure 8.

Of medium size or slightly below it, dark fuscous above, flavo-testaceous below, with a very broad piceous postocular band, which crosses the whole pronotum, but is sometimes diluted on the metazona, and with conspicuous pale flavous stripes on the metapleura and along the lower margin of the outer face of the hind femora. Head hardly prominent, plumbeo-olivaceous, varying to testaceous, more or less infuscated, at least above, and with the postocular stripe edged narrowly with dull flavous; vertex gently convex, only slightly elevated above the pronotum, the interspace between the eyes considerably broader than the first antennal joint; fastigium steeply declivent, dis-

tinctly sulcate, especially in the male; frontal costa about or hardly as wide as the interspace between the eyes, subequal, just not reaching the clypeus, faintly ( $\sigma$ ) or distinctly ( $\varphi$ ) sulcate below the ocellus, biserially punctate above; eyes moderate, but little more prominent in the male than in the female, distinctly longer than the infraocular portion of the genæ; antennæ castaneous or rufous, infuscated apically, in the male about two-thirds as long as the hind femora. Pronotum rather short, faintly ( $\sigma$ ) or distinctly ( $\varphi$ ) enlarging from in front backward, dark fuscous above, the lower portion of the lateral lobes luteo- or olivaceo-testaceous, the disk convex, and passing, by a distinct angulated shoulder forming weak lateral carinæ, into the vertical, anteriorly tumid ( $\sigma$ ) or subvertical ( $\varphi$ ) lateral lobes; median carina prominent, equal, percurrent; front margin subtruncate, in the male feebly flaring, hind margin subtruncate, faintly rounded, sometimes with the faintest possible median emargination; prozona feebly longitudinal ( $\sigma$ ) or longitudinally subquadrate ( $\varphi$ ), fully a third longer than the finely punctate metazona. Prosternal spine moderate, conical, blunt, suberect; interspace between mesosternal lobes quadrate or longitudinally quadrate ( $\sigma$ ) or somewhat transverse ( $\varphi$ ), the mesosternal lobes subattingent ( $\sigma$ ) or rather distant ( $\varphi$ ). Tegmina a little shorter than the pronotum, separated above, elliptical, apically rounded, dark fuscous. Fore and middle femora a little tumid in the male, testaceous, more or less infuscated; hind femora rather short and thick, blackish fuscous above, the outer face black with the inferior flavous stripe already mentioned and the upper edge reddish flavous, the under surface orange and the geniculation fuscous; hind tibiæ dull or bright red, rarely luteous, the spines black almost to the base, 11-12 in number in the outer series. Extremity of male abdomen very clavate, strongly recurved, the supraanal plate subhastate with gently elevated margins, and a deep percurrent or almost percurrent median sulcus with high margins; furcula consisting of a pair of slender, tapering, parallel fingers extended over the basal fifth of the supraanal plate; cerci simple subtriangular laminae, largest just beyond the extreme base, in one vertical plane, the upper edge nearly straight or feebly concave, the lower edge bent rounded, the apex bluntly rounded and hardly half the basal width, the whole less than twice as long as the greatest width; subgenital plate broad and broadest at base though subequal and much longer than broad, the apical margin feebly elevated and faintly tuberculate.

Length of body, ♂, 17.5 mm., ♀, 21.5 mm.; antennæ, ♂, 7.5? mm., ♀, 7.5 mm.; tegmina, ♂ ♀, 4.25 mm.; hind femora, ♂, 11 mm.

6 ♂, 1 ♀. San Francisco Mts., Flagstaff, Coconino Co., Arizona, July 31, Dr. J. L. Hancock.

This is an aberrant member of the series, bearing no close resemblance to any other species, excepting that in the unusual and striking markings of the hind femora it almost exactly repeats those of *M. femur-nigrum*, found in the same place at the same time. Its male cerci are uncommonly short and broad for a species in this series.

*Melanoplus phoetalotiformis* sp. nov.

Plate VII., Figure 9.

Of medium size, rather elongate, fusco-testaceous, paler and often much paler beneath. Head rather prominent, plumbeous or fusco-plumbeous, more or less mottled with testaceous, above fuscous with two diverging and enlarging, sometimes obsolete, testaceous stripes, followed on either side below by a piceous postocular band; vertex very gently tumid, scarcely elevated above the pronotum, the interspace between the eyes nearly (♂) or a little more than (♀) twice as wide as the first antennal joint: fastigium pretty strongly declivent, somewhat sulcate, especially in the male; frontal costa fuding before the clypeus, enlarging feebly in passing downward (♂) or considerably contracted above (♀), at the ocellus scarcely sulcate, distinctly narrower than the interspace between the eyes, sparsely punctate throughout; eyes of moderate size, a little prominent in the male, distinctly longer, especially in the male, than the infraocular portion of the genæ; antennæ luteo-castaneous or rufous, slightly infuscated apically, about three-fourths (♂) or a little more than half (♀) as long as the hind femora. Pronotum subequal but slightly enlarging both anteriorly and posteriorly, above fusco-testaceous with a plumbeous tinge, on the sides pallid testaceous, below more or less deeply tinged with plumbeous, with a plumbeo-piceous postocular band on the prozona, rarely edged above with dull testaceous, the disk gently convex and passing without angulation but only a rounded shoulder into the subvertical lateral lobes, which are slightly tumid on the prozona; median carina tolerably distinct, percurrent, subequal, but a trifle more pronounced on the metazona; front margin subtruncate, hind margin feebly convex; prozona distinctly longitudinal (♂) or longi-

tudinally quadrate (♀), about a third longer than the densely but rather feebly punctate metazona. Prosternal spine moderate, cylindrical, apically tapering, a little retrorse; interspace between mesosternal lobes twice as long again as broad (♂) or longitudinally subquadrate (♀), the metasternal lobes attingent (♂) or subattingent (♀). Tegmina slightly longer than the pronotum, attingent or slightly overlapping, ovate lanceolate, apically acuminate, twice or (especially in the male) sometimes more than twice as long as broad, testaceous or fusco-testaceous. Fore and middle femora a very little timid in the male, luteo-testaceous marked with fuscous; hind femora luteo-testaceous, feebly infuscated externally and sometimes on the upper part of the inner face with a pair of fuscous blotches, beneath faint orange, the geniculation infuscated; hind tibiae blue, often luteous basally, with a narrow black postgenicular annulus, the spines black with pallid bases, 11-12 in number in the outer series. Abdomen testaceous above, flavous beneath the extremity in the male feebly clavate, slightly recurved, the supraanal plate hastate, acutangulate, nearly plane, with a rather pronounced median sulcus on the basal two-thirds, its walls not very prominent; furcula reduced to a pair of scarcely perceptible knobs; cerci rather slender, as broad at base as the frontal costa, tapering to less than half the breadth in the basal half, beyond nearly equal but tapering to a blunt tip, hardly incurved, and falling much short of the tip of the supraanal plate; subgenital plate small, simple, of nearly equal width and narrower than long, apically a little pinched above so as to appear faintly tuberculate, the lateral margins meeting apically in an acute angle.

Length of body, ♂, 19 mm., ♀, 25 mm.; antennæ, ♂, 8.5 mm., ♀, 7.5 mm.; tegmina, ♂, 5.25 mm., ♀, 6 mm.; hind femora, ♂, 11 mm., ♀, 14 mm.

19 ♂, 14 ♀. Gazelle, Siskiyou Co., California, Sept. 5, A. P. Morse. Since description, I have found that specimens from Brown's Valley, Traverse Co., Minnesota, sent me by Prof. Otto Lugger and which I had at first supposed another undescribed form, are of the same species.

It bears a close general resemblance to *Phoetaliotes nebrascensis volucris*. With the next species and *M. huroni*, both eastern species, it forms a group apart in the present series, having relatively long tegmina and very simple male cerci.



*Melanoplus incultus* sp. nov.

Plate VII., Figure 10.

Of medium size, fuscous or fusco-testaceous, dull flavous beneath, with a broad postocular piceous belt reaching to the posterior margin of the prozona. Head slightly prominent, pallid testaceous ( $\sigma^7$ ) or testaceous ( $\varphi$ ) overlaid with fusco-olivaceous, above fuscous, the upper part of the eyes and the postocular belt edged with pallid testaceous; vertex gently tumid, scarcely elevated above the pronotum, the interspace between the eyes half as wide again ( $\sigma^7$ ) or nearly twice as wide ( $\varphi$ ) as the first antennal joint; fastigium steeply declivent, very shallowly ( $\sigma^7$ ) or hardly ( $\varphi$ ) sulcate; frontal costa failing to reach the clypeus, subequal but enlarging from above downward, a little narrower, especially in the female, than the interspace between the eyes, fully sulcate at and below the ocellus, punctate throughout but especially above; eyes of moderate size, a little prominent in the male, distinctly longer, especially in the male, than the infraocular portion of the genæ; antennæ fusco-testaceous or rufous, lutescent basally, a little shorter than ( $\sigma^7$ ) or about three-fourths (?) as long as ( $\varphi$ ) the hind femora. Pronotum subequal, even in the female, the disk fusco-testaceous or fuscous, often obscurely edged laterally with testaceous, gently convex, passing by a rounded shoulder, only in the female simulating lateral carinæ, into the subvertical lateral lobes; median carina feeble, at all distinct only on the metazona and the front of the prozona, obsolete or subobsolete between the sulci; front margin truncate, hind margin very obtusangulate, the angle rounded; prozona quadrate ( $\varphi$ ) or longitudinally quadrate ( $\sigma^7$ ), about a third longer than the finely and obscurely punctate metazona. Prosternal spine moderate, erect, very blunt conical; interspace between the mesosternal lobes longitudinally subquadrate ( $\sigma^7$ ) or decidedly transverse ( $\varphi$ ), the metasternal lobes approximate ( $\sigma^7$ ) or rather distant ( $\varphi$ ). Tegmina a very little longer than the pronotum, overlapping, ovate lanceolate with pointed tips, fusco-testaceous, sometimes dotted with blackish fuscous, the limit between the anal and median areas distinctly marked with flavo-testaceous. Fore and middle femora slightly tumid in the male, flavo-testaceous more or less infuscated; hind femora more or less pallid testaceous, with a pallid pregenicular annulus and twice obliquely and rather narrowly banded with blackish fuscous, besides a blackish fuscous geniculation, more or less flav-

ous beneath; hind tibiæ red, the spines black, 9-11, usually 10, in number in the outer series. Extremity of male abdomen a little clavate, a little recurved, the supraanal plate triangular, somewhat acutangulate, nearly plane, with a rather slender, percurrent, median sulcus, deep in basal, shallow and inconspicuous in apical half, bounded in basal half by moderately heavy ridges; furcula consisting of a pair of slender, acuminate, parallel fingers, extending over the supraanal plate by less than the length of the last dorsal segment; cerci slender, not nearly so long as the supraanal plate, gently and slightly incurved, at base no broader than the first antennal joint, tapering to about half the width, the apical half equal, the tip bluntly rounded; subgenital plate small, broad at base but tapering a little, and at apex narrower than long, the apex feebly pyramidal and produced to a distinct though rather slight tubercle.

Length of body, ♂, 18.5 mm., ♀, 25 mm.; antennæ, ♂, 8.5 mm., ♀, 8.5? mm.; tegmina, ♂, 6 mm., ♀, 7.5 mm.; hind femora, ♂, 10 mm., ♀, 11.5 mm.

4 ♂, 2 ♀. Foothills five miles west of Fort Collins, July 10, and mountains of Larimer Co., Colorado, July 11, C. F. Baker.

This species is very closely allied to, if it be distinct from, *M. huroni* Blatchl., but appears to differ from it in its smaller size, considerably shorter tegmina, slightly slenderer cerci and less pronounced tubercle of the subgenital plate; the punctuation and the median carina of the metazona are also less pronounced.

*Melanoplus huroni.*

*Melanoplus huroni* Blatchl.! Psyche, VIII, 195-196 (1898).

Described by Blatchley from La Salle Island, Michigan. I here merely indicate its place in the series.

INORNATUS SERIES.

To this series can be added one more species, sent me from Arizona by Dr. J. L. Hancock, though it differs considerably from the other members of the series. To accommodate it, the table of the species (Revision, p. 128) may be altered thus:

TABLE OF THE SPECIES IN THE INORNATUS SERIES OF MELANOPLUS.

a<sup>1</sup>. Male cerci broadly or rather broadly expanded apically; apical tubercle of subgenital plate blunt.

*b*<sup>1</sup>. Male cerci rather small and moderately slender, very far from reaching the extremity of the supraanal plate; apex of subgenital plate considerably protuberant. . . . . *franciscanus* sp. nov.

*b*<sup>2</sup>. Male cerci large and broad, reaching the extremity of the supraanal plate; apex of subgenital plate very slightly protuberant.

*inornatus* McNeill.

*a*<sup>2</sup>. Male cerci very feebly expanded apically; apical tubercle of subgenital plate acute . . . . . *viridipes* Walsh, *decorus* Scudd.\*

*Melanoplus franciscanus* sp. nov.

Plate VIII., Figures 1, 2.

Of moderately large size, heavy, dark fuscous or fusco-testaceous, the female often olivaceous, olivaceo-flavous beneath, with a very broad piceous or fusco-piceous postocular band crossing the prozona. Head moderately prominent, ranging from olivaceous to testaceous, often more or less tinged with fuscous especially on summit, the upper margin of the postocular band edged with testaceous, which extends backward across the pronotum; vertex rather tumid but only a little elevated above the pronotum, the interspace between the eyes rather less (♂) or rather more (♀) than twice as wide as the first antennal joint: fastigium steeply declivent, plane; frontal costa just failing to reach the clypeus, subequal but slightly narrowed above, about (♂) or hardly (♀) as broad as the interspace between the eyes, very shallowly sulcate below the ocellus, biserially punctate above; eyes moderate, very feebly prominent in the male, much (♂) or a little (♀) longer than the infraocular portion of the genæ; antennæ rufo-castaneous, lutescent basally, nearly as long (♂) or about two-thirds as long (♀) as the hind femora. Pronotum subequal, faintly (♂) or distinctly (♀) enlarging from in front backward, the lower part of the lateral lobes plumbeous or testaceous, the disk dark fuscous or testaceous, in the female often olivaceous (with markings described), gently convex, passing by a rounded shoulder more noticeable on the metazona into the subvertical lateral lobes; median carina percurrent, but feeble between the sulci and most pronounced on the metazona; front margin truncate, hind margin very broadly convex (♂) or very obtusangulate, the angle rounded (♀); prozona distinctly longitudinal (♂) or subquadrate (♀), nearly a half (♂) or fully a third (♀) longer than the rather densely punctate metazona. Prosternal spine rather stout,

\* Separated as before, in Revision.

appressed cylindrical, blunt; interspace between mesosternal lobes fully half as long again as broad ( $\sigma^7$ ) or subquadrate or transverse ( $\text{♀}$ ), the metasternal lobes attingent ( $\sigma^7$ ) or moderately distant ( $\text{♀}$ ). Tegmina fully as long as, generally a little longer than, the pronotum, overlapping, obovate, acuminate, fusco-testaceous or fuscous, in some females fusco-olivaceous, the anal area, or at least its margin next the median area, testaceous or pallid testaceous. Fore and middle femora somewhat tumid in the male, fusco-olivaceous, sometimes testaceous; hind femora moderately heavy, flavo-testaceous, heavily trifasciate with fuscous (sometimes blended on the outer face), besides a fuscous geniculation, the lower face orange; hind tibiae coral red, the spines black nearly to the base, 11, rarely 12, in number in the outer series. Extremity of male abdomen strongly clavate, much recurved, the supraanal plate broad triangular with a subrectangulate apex, margins feebly flaring basally, and a coarse median sulcus for two-thirds or three-fourths the length, margined by low rather blunt walls; furcula consisting of a pair of minute lobes on either side of the base of the median sulcus; cerci of moderate size, gently incurved throughout, about as broad at base as the frontal costa, tapering to two-thirds that width in the middle, and again expanding to a spatulate oval tip well rounded at apex, and falling far short of the tip of the supraanal plate; subgenital plate of moderate size, the lateral margins strongly concave, being elevated a little basally and rising to the much elevated and flaring apical margin, forming here a stout, blunt, slightly depressed, ascending tubercle.

Length of body,  $\sigma^7$ , 21 mm.,  $\text{♀}$ , 32 mm.; antennae,  $\sigma^7$ , 12? mm.,  $\text{♀}$ , 12 mm.; tegmina,  $\sigma^7$ , 8 mm.,  $\text{♀}$ , 10 mm.; hind femora,  $\sigma^7$ , 13.5 mm.,  $\text{♀}$ , 17 mm.

48  $\sigma^7$ , 21  $\text{♀}$ . San Francisco Mts., Flagstaff, Coconino Co., Arizona, July 30, Dr. J. L. Hancock.

#### FASCIATUS SERIES.

To this series there is a single addition to make, from California, which adds still more diversity to that little homogeneous group. Its position is best marked by separating it bodily from the rest in the table of the brachypterous species of this series (Revision, pp. 128-129), as follows:

TABLE OF THE BRACHYPTEROUS SPECIES OF THE FASCIATUS SERIES OF  
MELANOPLUS.

- a*<sup>1</sup>. Male cerci distinctly decurved apically, as well as strongly incurved.  
*ablutus* sp. nov.
- a*<sup>2</sup>. Male cerci in no way decurved, or if feebly (*fasciatus*), then they are not incurved ..... *The remaining species*.\*

*Melanoplus ablutus* sp. nov.

## Plate VIII., Figure 3.

Below medium size, weak fusco-testaceous or dull, pale testaceous, more or less flavous beneath. Head slightly prominent in the male, flavo-testaceous flecked with fuscous, heavily above as a general rule, but sometimes hardly flecked at all; vertex very gently tumid, scarcely elevated above the pronotum, the interspace between the eyes somewhat broader than the first antennal joint; fastigium rather steeply declivent, distinctly (♂) or slightly (♀) sulcate; frontal costa percurrent, subequal, slightly broader than the interspace between the eyes, feebly sulcate below the ocellus, irregularly punctate throughout; eyes moderate, rather prominent in the male, distinctly longer than the infraocular portion of the genæ, particularly in the male; antennæ luteous, luteo-castaneous, or rufous, lutescent basally, more than two-thirds (♂) or a little more than half (♀) as long as the hind femora. Pronotum subequal, faintly enlarging in the posterior half, fuscous or testaceous above, with a broad postocular piceous band on the prozona, often obsolete in the female, sometimes extended, dulled, over the metazona, beneath which the lateral lobes are flavo-testaceous or subflavous, the disk moderately convex, passing without sign of lateral carinæ into the vertical or subvertical lateral lobes; median carina feeble, especially between the sulci; front margin truncate, hind margin very broadly obtusangulate; prozona longitudinal (♂) or quadrate or subquadrate (♀), one-half (♂) or nearly a third (♀) longer than the densely punctate metazona. Prosternal spine moderate, very blunt conical, a little retrorse; interspace between mesosternal lobes a little longer than broad (♂) or distinctly transverse (♀), the metasternal lobes subattingent (♂) or approximate (♀). Tegmina about as long as the pronotum, obovate, more than half as long again as broad, apically blunt angulate, brownish fuscous, sometimes obscurely dotted with blackish fuscous. Fore and middle femora slightly

\* Separated as in the Revision.

enlarged in the male, testaceous, often infuscated; hind femora pallid or flavo-testaceous, on the upper half more or less obscurely bifasciate with fuscous, the geniculation infuscated; hind tibiæ blue, often more or less pallid along the spiniferous margins, pallescent at base, with a postgenicular fuscous dot posteriorly, the spines black with pallid bases, 10-11 in number in the outer series. Extremity of male abdomen clavate, considerably recurved, the supraanal plate subhastate with acutangulate apex, broadly flaring sides and a rounded depression next the apex with raised edges, and a distinct median sulcus terminating at this depression and bounded by sharp ridges; furcula consisting of a pair of parallel minute denticulations, one on either side of the ridges bounding the median sulcus of the underlying plate; cerci moderately large, laminate, as broad at base as the subgenicular lobes of the hind femora, narrowing to two-thirds that size just before the middle and then expanding nearly as much to an elongate flap, which is a little decurved and as much incurved, its apical half tapering and bluntly rounded, reaching the tip of the supraanal plate; subgenital plate rather small, equal, almost as broad as long, apically a little compressed, the apical margin very strongly rounded, not elevated, entire.

Length of body, ♂, 14.5 mm., ♀, 19.5 mm.; antennæ, ♂ ♀, 6.5 mm.; tegmina, ♂, 4 mm., ♀, 5 mm.; hind femora, ♂, 9 mm., ♀, 11 mm.

2 ♂, 9 ♀. Wawona, Mariposa Co., California, August 13, A. P. Morse.

#### ALLENI SERIES.

To this series, heretofore represented by only two species of moderate size, from New Mexico, Dakota and Iowa, are now added two more, of small size, from California, collected by Mr. A. P. Morse. They agree closely together and are very different from the two previously known. The species may be separated as follows:

##### TABLE OF THE SPECIES IN THE ALLENI SERIES OF MELANOPLUS.

a<sup>1</sup>. Stout and medium sized species. Median carina of pronotum more or less obscured on the prozona; hind margin of pronotum obtusangulate; tegmina as long as or longer than the pronotum; hind tibiæ generally red; male cerci relatively stout and apically angulate.

b<sup>1</sup>. Tegmina twice as long as pronotum; male cerci relatively long and narrow, fully three times as long as broad . . . . . *alleni* Scudd.

b<sup>2</sup>. Tegmina of about the length of the pronotum; male cerci broad and relatively short, not more than twice as long as broad . . . . . *snowi* Scudd.

*a*<sup>2</sup>. Slender and small species. Median carina of pronotum prominent throughout; hind margin of pronotum subtruncate; tegmina shorter than pronotum; hind tibiæ glaucous; male cerci very slender and apically rounded.

*b*<sup>1</sup>. Male cerci relatively short, not nearly reaching the tip of the supraanal plate; apical tubercle of subgenital plate prominent. *nanus* sp. nov.

*b*<sup>2</sup>. Male cerci relatively slender and long, almost reaching the tip of the supraanal plate; apical tubercle of subgenital plate obscure.

*lignicolus* sp. nov.

*Melanoplus nanus* sp. nov.

Plate VIII., Figure 4.

Of small size, rather slender, fuscous or fusco-testaceous, rarely testaceous, dull flavous beneath, with a broad piceous postocular stripe crossing the prozona. Head not prominent, testaceous or plumbeo-testaceous, much flecked with fuscous, especially above where it is almost wholly fuscous, the upper margin of the postocular stripe edged narrowly with testaceous; vertex tumid though elevated but little above the pronotum, the interspace between the eyes half as broad again (♂) or twice as broad (♀) as the first antennal point; fastigium steeply declivent, strongly (♂) or scarcely (♀) sulcate; frontal costa almost percurrent, subequal but faintly narrowing above, about as wide as the interspace between the eyes, faintly sulcate at the ocellus, biserially punctate above; eyes moderate, somewhat prominent in the male, much longer than the infraocular portion of the genæ; antennæ castaneous, luteous at base, often infuscated apically, about two-thirds (♂) or hardly half (♀) as long as the hind femora. Pronotum subequal (♂) or feebly enlarging from in front backward (♀), fuscous but below the postocular stripe plumbeo-luteous, sometimes infuscated, the disk convex, passing by a faint angulation, in the female simulating lateral carinæ, into the vertical lateral lobes, which in the male are faintly tumid on the prozona; median carina distinct, percurrent, equal; front margin faintly convex (♂) or truncate (♀), hind margin very broadly convex or subtruncate; prozona strongly (♂) or scarcely (♀) longitudinal, fully half (♂) or about one-third (♀) as long again as the scarcely more punctate metazona. Prosternal spine small, subconical (♂), or conical (♀), blunt, slightly retrorse; interspace between mesosternal lobes somewhat longer than broad (♂) or decidedly transverse (♀), metasternal lobes attingent (♂) or approximate (♀). Tegmina a little shorter than the pro-

notum, subattingent, ovate, with rounded subangulate tips, fuscous. Fore and middle femora a little tumid in the male, testaceous, more or less infuscated; hind femora fusco-testaceous, the outer face very obliquely marked with fuscous, sometimes wholly infuscated, subflavous beneath; hind tibiæ very pale sordid glaucous, the spines black on apical half, 11 in number in the outer series. Extremity of male abdomen clavate, considerably recurved, the supraanal plate subhastate, apically strongly acutangulate, nearly plane, the lateral margins slightly raised at the base, the median sulcus pronounced, reaching only the middle of the plate, bounded by sharp and high ridges; furcula consisting of a pair of slender, slightly divaricating spines on either side of the base of the median sulcus, but little longer than the last dorsal segment; cerci slender and short, no broader at base than the first antennal joint, tapering slightly to the middle and then expanding a less amount, the apical portion forming an ovate, very bluntly pointed pad, faintly sulcate externally and failing far to reach the tip of the supraanal plate, the whole a little incurved but otherwise straight; subgenital plate small, subpyramidal, scarcely longer than broad, of equal breadth, the apical margin faintly elevated and forming a conical tubercle.

Length of body, ♂, 14 mm., ♀, 18 mm.; antennæ, ♂, 5.5 mm., ♀, 4.5 mm.; tegmina, ♂, 2.75 mm., ♀, 3 mm.; hind femora, ♂, 8.5 mm., ♀, 10 mm.

27 ♂, 22 ♀. Mill Valley, Marin Co., Aug. 22; San Francisco, Aug. 19; Berkeley, Alameda Co., Aug. 21; and Baden, San Mateo Co., California, Aug. 24, A. P. Morse.

*Melanoplus ligneolus* sp. nov.

Plate VIII., Figures 5, 6.

Of small size and rather slender, testaceous, or sometimes in the female luteo-testaceous, in the former case conspicuously marked with a broad piceous postocular band crossing the prozona, and with piceous flanks to the abdomen, in the latter case preserving only feeble indications of such markings, in both flavous beneath. Head not prominent, luteo-testaceous, more or less flecked on summit with fuscous, especially in the male, in a broad median belt; vertex tumid, feebly elevated above the pronotum, the interspace between the eyes half as broad again as the first antennal joint; fastigium strongly declivent,



gently sulcate; frontal costa just failing to reach the clypeus, subequal but faintly narrowed above, about as broad as the interspace between the eyes, scarcely sulcate at the ocellus, biserially punctate above; eyes moderate, a very little prominent in the male, very much longer than the infraocular portion of the genæ, particularly in the male; antennæ castaneous, luteous toward the base, about three-fifths (♂) or about half (♀) as long as the hind femora. Pronotum subequal, testaceous or luteo-testaceous, sometimes faintly dotted with fuscous, below the postocular band flavo-testaceous, the disk feebly convex, passing by a slight angulation into the vertical lateral lobes; median carina distinct, percurrent, equal, sometimes fuscous; front margin very feebly convex, hind margin subtruncate but with the feeblest possible angulation, often rounded in the male; prozona longitudinal, a half (♂) or a third (♀) longer than the finely and densely punctate metazona. Prosternal spine moderate, feebly conical, very blunt, erect; interspace between metasternal lobes longitudinally subquadrate (♂) or transverse (♀), the metasternal lobes attingent (♂) or approximate (♀). Tegmina a little shorter than the pronotum, attingent or subattingent, broad oval, scarcely angulated apically, testaceous or luteo-testaceous, the greater portion or all but the anal field occasionally heavily infuscated. Fore and middle femora slightly tumid in the male, luteo-testaceous, often somewhat infuscated; hind femora testaceous, the outer face often infuscated especially above, but without fasciation, the genicular arc marked with a black line, beneath more or less luteous; hind tibiæ very pale glaucous or luteo-glaucous, the spines black except at base, short, 10-12 in number in the outer series. Extremity of male abdomen a little clavate, a little recurved, the supraanal plate hastate, very acutangulate, plane or nearly plane but feebly tectiform, the median carina distinct, percurrent between sharply defined ridges; furcula consisting of a pair of minute pointed denticulations or projections on either side of the base of the median sulcus, no longer than the last dorsal segment; cerci slender, as broad at base as the frontal costa, tapering to two-thirds that width in the middle, then enlarging somewhat to form a long oval lobe, bluntly rounded apically and sulcate exteriorly, the whole gently incurved and almost reaching the tip of the supraanal plate; subgenital plate rather small, almost as broad as long, a little tumid and apically very bluntly conical, the margins, as seen from above, forming a strongly rounded curve.

Length of body, ♂, 17 mm., ♀, 21 mm.; antennæ, ♂, 6 mm., ♀, 5.75 mm.; tegmina, ♂, 3.25 mm., ♀, 4.25 mm.; hind femora, ♂, 10 mm., ♀, 11 mm.

8 ♂, 8 ♀. Berkeley, Alameda Co., Aug. 21; and Benicia, Solano Co., California, Aug. 26, A. P. Morse.

This species closely resembles *M marginatus pauper*, but differs from it in its lighter color, apically rounded tegmina, more distinctly and sharply punctate metazona, externally sulcate male cerci and more bluntly conical subgenital plate. It is most nearly allied to the preceding species, from which it differs by its lighter colors (from which its name is derived), its shorter male cerci and blunter apical tubercle to the subgenital plate.

#### CINEREUS SERIES.

A single species has been added to this series through the collections of Mr. A. P. Morse in California. The table of the series as given in my Revision (p. 135) may be modified to include it in the group containing cyanipes and cinereus, as follows, using the initial letters of that table:

#### TABLE OF A PORTION OF THE SPECIES IN THE CINEREUS SERIES OF MELANOPLUS.

- i. Furcula of male narrowing uniformly or almost uniformly throughout; hind margin of pronotum very obtusangulate.....*cyanipes* Brun.
- ii. Furcula of male with a considerable part of the apical portion equal and very slender; hind margin of pronotum moderately obtusangulate.
- i*<sup>1</sup>. Nearly uniform, with only feeble markings; lower apical angle of male cerci much produced inferiorly.....*dealbatus* sp. nov.
- i*<sup>2</sup>. Considerably diversified in color and much befecked; lower apical angle of male cerci but feebly or hardly produced inferiorly.
- cinereus* Scudd.

*Melanoplus dealbatus* sp. nov.

Plate VIII., Figures 7, 8.

Nearly uniform pale testaceous, with a feeble greenish tinge seen most clearly in the males and on the closed tegmina. Head rather large and prominent, flavo-testaceous or dull flavous, with a faint, broad, slightly fuscous postocular band, extending to the metazona; vertex moderately tumid, somewhat elevated above the pronotum, the

interspace between the eyes a little broader, especially in the female, than the first antennal joint; fastigium moderately declivent, broadly sulcate, but only very shallowly in the female; frontal costa rather prominent above, equal, just failing to reach the clypeus, slightly broader than the interspace between the eyes, feebly sulcate at and a little below the ocellus, biserially punctate above; eyes large, moderately prominent, very much longer than the infraocular portion of the genæ, the front margin subtruncate; antennæ flavous, deepening in color to orange at tip, fully ( $\sigma$ ) or much less than ( $\text{♀}$ ) two-thirds as long as the hind femora. Pronotum, except for the feeble postocular band and the infuscated sulci, nearly uniform in color, subequal, expanding a little on the metazona, especially in the male; front margin truncate, hind margin obtusangulate, the angle rounded; prozona feebly convex on the disk, passing by a rounded shoulder hardly forming lateral carinæ into the vertical lateral lobes, as a whole subquadrate, very obscurely and rather coarsely punctate, scarcely if any longer than the densely and finely punctate metazona. Prosternal spine moderate, erect, conico-cylindrical, blunt; interspace between mesosternal lobes twice ( $\text{♀}$ ) or many times ( $\sigma$ ) as long as broad. Tegmina distinctly surpassing the hind femora, slender, gently tapering, apically well rounded, pale greenish testaceous, sparsely and irregularly flecked minutely with fuscous; wings a little shorter than the tegmina, pellucid, the veins greenish, infuscated about the apex. Fore and middle femora somewhat tumescent in the male, flavous, sometimes with a greenish tinge; hind femora also flavous, with no fasciation, the outer face sometimes a little infuscated, the genicular arc heavily marked in black, the genicular lobes pallid, generally marked with black spots at the base; hind tibiæ very pale glaucous, the spines pallid in the basal, black in the apical half, 10 in number in the outer series. Extremity of male abdomen somewhat clavate, upturned, the supraanal plate subclypeate, a little produced at the tip, the lateral margins a little elevated, the median carina rather slight, percurrent but weak in the middle, lying between rather broad and not greatly elevated walls; furcula consisting of a pair of basally adjacent, laterally somewhat arcuate, long and slender, depressed fingers, equal and moderately broad in the basal third, tapering by the excision of the inner margin in the middle third, and beyond equal again but only a third as broad as the base, apically blunt, reaching fully two-thirds across the supraanal plate; cerci moderately broad, compressed and

tapering considerably in the basal half, then suddenly bent inward and considerably expanded so as to be as broad apically as basally, while at the same time they are slightly twisted, sulcate and much more laminate and the lower apical angle is slightly produced, tucked beneath the pallium and just fails to reach the tip of the supraanal plate; subgenital plate of subequal breadth, feebly flaring, the lateral and apical margins in the same plane, entire.

Length of body, ♂, 28.5 mm., ♀, 35 mm.; antennæ, ♂, 11 mm., ♀, 10 mm.; tegmina, ♂, 25 mm., ♀, 28.5 mm.; hind femora, ♂, 15 mm., ♀, 18 mm.

5 ♂, 13 ♀. Ceres, Stanislaus Co., California, August 17, A. P. Morse.

The bleached appearance of this insect has suggested the name. It is very closely related to *M. cinereus* and may possibly be more properly regarded as a varietal form of that very variable species, peculiar for its color, the less abruptly and considerably twisted male cerci, and the more pronounced inferior production of their apical angle.

#### PACKARDII SERIES.

Colorado furnishes an aberrant member of this series, forming passage to the succeeding (Collinus) series. The male cerci are not bifurcate, but the lower apical angle is excessively produced and de-curved, leaving an angle where an upper fork should be, to bring it in the Collinus Series in the near vicinity of *alpinus* and *infantilis*; there being, however, no fork whatever, I have thought it best to place it here and to separate it bodily from the other members of the series as follows:

##### TABLE OF THE SPECIES IN THE PACKARDII SERIES OF MELANOPLUS.

Cerci of male with the apex symmetrically or almost symmetrically rounded.  
*packardii* Scudd., etc.\*

Cerci of male with the lower inferior angle produced to an acuminate blade.  
*pilatus* sp. nov.

*Melanoplus pilatus* sp. nov.

Plate IX., Figures 1, 2.

Rather below the medium size and moderately slender, testaceous, marked with fuscous. Head a little prominent, luteo-testaceous, more or less flecked with fuscous, especially above, where it may be heavily

\*Separated as in the Revision, pp. 136-137.

spotted next the upper edge of the eyes and in a postocular stripe, the latter always present and subpiceous; vertex gently tumid, slightly elevated above the pronotum, the interspace between the eyes considerably broader than ( $\sigma$ ) or nearly twice as broad as ( $\varphi$ ) the basal joint of the antennæ; fastigium steeply declivent, sulcate throughout, in the male deeply; frontal costa just failing to reach the clypeus, a little narrowed above the ocellus, but below fully as broad as the interspace between the eyes, shallowly sulcate at and just below the ocellus, biserially punctate above; eyes moderate, not prominent, much longer than the infraocular portion of the genæ; antennæ testaceous-fuscous, becoming fuscous apically, a little more ( $\sigma$ ) or a little less ( $\varphi$ ) than two-thirds as long as the hind femora. Pronotum moderately slender and rather short, slightly enlarging posteriorly, delicately pilose, the piceous postocular stripe crossing the prozona, but otherwise testaceous or luteo-testaceous, except that the disk may be more or less ferruginous and marked laterally by fuscous stripes; the disk is feebly convex with rounded but moderately distinct lateral carinæ; median carina percurrent but more distinct on the metazona than on the prozona; front margin faintly convex, hind margin rounded obtusangulate; prozona longitudinally ( $\sigma$ ) or transversely ( $\varphi$ ) quadrate, of the same length as the scarcely punctate metazona. Prosteranal spine moderate, faintly retrorse, conico-cylindrical, blunt; interspace between mesosternal lobes slightly longer than broad ( $\sigma$ ) or quadrate ( $\varphi$ ), the metasternal lobes approximate. Tegmina reaching ( $\sigma$ ) or failing to reach ( $\varphi$ ) the tip of the hind femora, rather slender, tapering throughout, strongly rounded at apex, testaceous with fuscous veins and a few fuscous spots in median area; wings very faintly infumate, the veins in the apical half infuscated. Fore and middle femora somewhat tumid in the male; hind femora rather slender, luteo- or ferrugineo-testaceous, the outer face almost wholly infuscated, the upper inner face sometimes twice spotted with fuscous, the genicular arc black; hind tibiæ very pale glaucous, the spines black excepting at extreme base, 11-13 in number in the outer series. Extremity of male abdomen feebly clavate, upturned, the supraanal plate triangular with raised margins, the median sulcus percurrent, very distinct, equal, its margins elevated like the lateral margins; furcula consisting of a pair of slight triangular teeth, no longer than the last dorsal segment; cerci stout and slightly bullate at base, immediately and rapidly tapering to a slender median cylinder, which expands apically

into a slightly decurved as well as incurved, triangular, elongated, apically acuminate lamina, reaching beyond the apex of the supraanal plate; subgenital plate rather small, forming a quadrangular scoop, broad at base, narrowing apically, with the apical margin suddenly and greatly elevated above the lateral margins, broadly convex above and apically externally sulcate.

Length of body, ♂, 19.5 mm., ♀, 20 mm.; antennæ, ♂♀, 7.5 mm.; tegmina, ♂, 12.5 mm., ♀, 14.5 mm.; hind femora, ♂, 11 mm., ♀, 12 mm.

1 ♂, 1 ♀. Mouth of Big South River, Larimer Co., 8000', August 3; and foothills five miles west of Fort Collins, Larimer Co., Colorado, July 10, C. F. Baker.

#### TEXANUS SERIES.

A considerable number of species are to be added to this series, all collected on the Pacific coast by Mr. A. P. Morse. Moreover, I formerly placed *M. marginatus* in the Plebejus Series instead of here, where it belongs, and to include it also it is necessary entirely to remodel the table formerly given to separate the species. As, moreover, *M. marginatus* is dimorphic, and one form is macropterous, it is necessary to find a place in the general table of the macropterous species for the Texanus Series, not heretofore represented. This is done by altering the table given in my Revision (pp. 136-137), so far as the Packardii, Texanus and Plebejus Series are concerned, in the following manner;

#### TABLE TO SEPARATE THE MACROPTEROUS SPECIES OF THE PACKARDII, TEXANUS, AND PLEBEJUS SERIES OF MELANOPLUS.

- a*<sup>1</sup>. Apical portion of supraanal plate of male suddenly depressed just beyond the middle; cerci broad or moderately broad, not much narrowed in the middle, more or less suddenly bent inward near tip, exteriorly sulcate at apex.....(Packardii Series)\*
- a*<sup>2</sup>. Supraanal plate of male on the same general plane throughout; cerci slender and much narrowed in the middle, gradually incurved, exteriorly tumid at apex.

*b*<sup>1</sup>. Subgenital plate of male short and broad, as broad as long, as seen from above apically angulate and tuberculate.

(Texanus Series) *marginatus* Scudd.

\*The separation of the species of this series is given elsewhere in the present paper.

*b*<sup>2</sup>. Subgenital plate of male narrower, apically much narrower, than long, as seen from above apically well rounded and simple.

(Plebejus Series) *paroxyoides* Scudd.

Dealing now with the brachypterous species of the Texanus Series we may remodel the table given in the Revision (pp. 129-130) as follows:

TABLE OF THE BRACHYPTEROUS SPECIES IN THE TEXANUS SERIES  
OF MELANOPLUS.

*a*<sup>1</sup>. Tegmina widely separated, lateral; interspace between mesosternal lobes of male more than twice as long as broad; furcula consisting of a pair of exceptionally broad and short plates.....*dumicola* Scudd.

*a*<sup>2</sup>. Tegmina subattinent, attinent or overlapping; interspace between mesosternal lobes of male less, generally much less, than twice as long as broad; furcula, when present, consisting of a pair of approximate pointed denticulations.

*b*<sup>1</sup>. Subgenital plate of male ending in a conical tubercle.

*c*<sup>1</sup>. Male cerci regularly incurved throughout.....*marginatus* Scudd.

*c*<sup>2</sup>. Male cerci sinuate as seen from above, being incurved and at tip again turned backward.....*variabilis* Brun.

*b*<sup>2</sup>. Subgenital plate of male with no pointed tubercle.

*c*<sup>1</sup>. Tegmina at most no longer than the pronotum, well rounded apically; cerci of male at tip angularly produced below, rounded above.

*d*<sup>1</sup>. Tip of male cerci angulate but not greatly produced below, this portion directed posteriorly more than inferiorly.

*e*<sup>1</sup>. Middle of male cerci scarcely half as broad as the base; furcula distinctly present though minute.....*lepidus* Scudd.

*e*<sup>2</sup>. Middle of male cerci but little narrower than the base; furcula absent.....*ascensus* sp. nov.

*d*<sup>2</sup>. Tip of male cerci not only angulate but much produced, the produced portion directed more inferiorly than posteriorly.

*e*<sup>1</sup>. Larger forms, the males exceeding 18 mm. in length; antennae of male not exceeding four-fifths the length of the hind femora; furcula present though minute; hind femora of female red.

*f*<sup>1</sup>. Middle of male cerci nearly as broad as the frontal costa at the ocellus, and about three-fourths as broad as the base of the cerci, acuminate at tip; furcula consisting of a pair of beads only; tegmina more or less angulate at tip.....*validus* sp. nov.

*f*<sup>2</sup>. Middle of male cerci only half as broad as the frontal costa at the ocellus and from a half to two thirds as broad as the base of the cerci, the tip produced but well rounded; furcula consisting of a pair of minute thorns; tegmina rounded apically.

*algidus* sp. nov.

- c*<sup>2</sup>. Smaller forms, the males not reaching the length of 18 mm.; antennæ of male almost as long as the hind femora; furcula absent; hind femora of both sexes glaucous, very rarely red. *debilis* sp. nov.
- c*<sup>3</sup>. Tegmina longer than the pronotum, subacuminate at tip; cerci of male symmetrically rounded at apex, above and below.
- d*<sup>1</sup>. Interspace between mesosternal lobes of male hardly more than half as long again as broad; extremity of subgenital plate elevated, but not noticeably recurved ..... *blatchleyi* Scudd.
- d*<sup>2</sup>. Interspace between mesosternal lobes of male nearly or quite twice as long as broad; extremity of subgenital plate elevated and considerably recurved..... *texasus* Scudd.

*Melanoplus ascensus* sp. nov.

Plate IX., Figure 3.

*Melanoplus ascensus* Scudd., Appal., viii., 315 (1898)—undescribed.

Slightly below the medium size, dark fuscous or fusco-testaceous, flavous beneath. Head faintly prominent, plumbeo testaceous, more or less, sometimes heavily, flecked with fuscous, above almost wholly fuscous, sometimes with a slender edging of testaceous to the postocular piceous band; vertex gently convex, a little elevated above the pronotum, the interspace between the eyes a little wider than the first antennal joint; fastigium steeply declivent, moderately sulcate; frontal costa percurrent, equal, fully as broad as the interspace between the eyes, a little sulcate below the ocellus, biserially punctate above; eyes moderately large, a little prominent, very much longer than the infraocular portion of the genæ; antennæ castaneous, pallescent at extreme base, almost as long as the hind femora. Pronotum subequal, very feebly expanding on the metazona, fuscous, with a broad piceous or fusco-piceous postocular band on the prozona, beneath which the lateral lobes are plumbeo testaceous, the disk gently convex, passing by a very rounded shoulder in no way simulating lateral carinæ into the vertical lateral lobes, which on the prozona are faintly tumid; median carina distinct but slight on the metazona, feeble on the prozona, subobsolete between the sulci; front margin truncate, hind margin gently convex; prozona a little longitudinal, about a quarter longer than the rather obscurely punctate metazona. Prosternal spine moderate, erect, feebly conical, blunt; interspace between mesosternal lobes from half as long again as broad to twice as long as broad, the metasternal lobes attingent. Tegmina almost as long as the pronotum, attingent, obo-



vate, strongly rounded apically, less than twice as long as broad, fusco-testaceous. Fore and middle femora slightly tumid, dark plumbeo-testaceous; hind femora not very slender, pallid testaceous, trifasciate with fuscous so broadly as to blend through most of the femur, leaving only pallid patches in rather striking contrast to the rest, the under surface and basal half of inner surface deep orange; hind tibiæ dark blue with a dark postgenicular dot, the spines black almost to the base, 11-12 in number in the outer series. Extremity of abdomen clavate, considerably recurved, the supraanal plate at base equal, beyond triangular, the apex somewhat acutangulate, the lateral margins flaringly elevated at base, the median sulcus percurrent, rather shallow, broadening apically, the walls low, especially apically; furcula wanting; cerci moderately stout, not very long, incurved throughout, at base rather broader than the frontal costa, narrowing in the middle to three-fourths the basal width, generally more by excision of the upper than of the lower margin, beyond enlarging slightly, a little decurved and ending with a rounded angulation, this apical portion more strongly incurved; subgenital plate not very large, flaring, of subequal width, and but little if any longer than broad, the lateral and apical margins in the same plane, and as seen from above forming a strong curve.

Length of body, 18 mm.; antennæ, 9.5 mm.; tegmina, 4 mm.; hind femora, 10 mm.

5 ♂. Mt. Shasta, northern California, just below the forest line, Sept. 2; Portland, Oregon, Sept. 19, A. P. Morse.

This species is more nearly allied to *M. lepidus* Scudd., from which it differs distinctly in its stouter cerci and the absence of a furcula.

*Melanoplus validus* sp. nov.

Plate IX., Figures 4, 5.

Of medium size, moderately stout, fusco-griseous, dull testaceous beneath, with a broad postocular piceous or subpiceous stripe extending over the prozona, sometimes obscure in the female. Head not prominent, dull testaceous, more or less deeply flecked and dotted with fuscous, above almost wholly fuscous or infuscated, the postocular stripe narrowly and often obscurely edged above and below with testaceous; vertex gently tumid, not or scarcely elevated above the pronotum, the interspace between the eyes fully half as broad again (♂) or twice as broad (♀) as the first antennal joint; fastigium con-

siderably declivent, broadly ( $\sigma^7$ ) or scarcely ( $\text{♀}$ ) sulcate; frontal costa percurrent or almost percurrent, equal or faintly narrowed above, scarcely narrower than the interspace between the eyes, scarcely sulcate below the ocellus, irregularly punctate; eyes moderately large, a little prominent in the male, somewhat longer than the infraocular portion of the genæ; antennæ dark castaneous or rufo-castaneous, often infuscated apically, about four-fifths ( $\sigma^7$ ) or about two-thirds ( $\text{♀}$ ) as long as the hind femora. Pronotum very feebly and gradually enlarging from in front backward, fusco-testaceous, rarely rufo-testaceous, often heavily and coarsely punctate with fuscous, dull testaceous below the postocular stripe, the disk gently convex, passing, on the metazona only and especially in the female, with the feeblest sign of any shoulder into the vertical lateral lobes, which are faintly tumid on the prozona; median carina low but distinct on the metazona, less distinct on the prozona; front margin truncate, hind margin very obtusangulate; prozona subquadrate or quadrate, a third longer than the heavily punctate metazona. Prosternal spine moderately stout, erect, slightly ( $\sigma^7$ ) or distinctly ( $\text{♀}$ ) conical, blunt ( $\text{♀}$ ) or very blunt ( $\sigma^7$ ); interspace between mesosternal lobes twice as long as broad ( $\sigma^7$ ) or subquadrate ( $\text{♀}$ ), the metasternal lobes subattinent ( $\sigma^7$ ) or approximate ( $\text{♀}$ ). Tegmina about as long as the pronotum, overlapping feebly, obovate, subacuminate but rounded, about half as long again as broad, or, in the male, more than that, fusco-testaceous, often dotted obscurely with fuscous. Fore and middle femora considerably tumid in the male, testaceous, more or less infuscated; hind femora testaceous, heavily angulato-bifasciate with fuscous, the geniculation fuscous, the under surface dull luteo-flavous; hind tibiæ variable, pale glaucous, dull luteous more or less infuscated, or pale dull red (the last in the female only), lutescent basally, sometimes pallid along the spiniferous margins, pilose, the spines black at tip, pallid at base, 10-11 ( $\sigma^7$ ) or 11-12 ( $\text{♀}$ ) in number in the outer series. Extremity of male abdomen strongly clavate, considerably recurved, the supraanal plate markedly clypeate, the basal half having subparallel but gently concave sides, the apical half being triangular with more strongly concave sides and acutangulate tip, all the margins a little elevated, the median sulcus distinct and percurrent between moderate ridges; furcula consisting of a pair of the slightest possible knobs or beads on either side of the base of the median sulcus above mentioned; cerci rather large and heavy, tapering gently toward the middle, which is about as broad

as the frontal costa, then similarly expanding to a piece of about the same size as the base with the addition of a triangular plate formed by the inferior and posterior production of the lower outer angle, the apical half of the whole incurved, the apical process often bent a little inward, bluntly acuminate, and about reaching the tip of the supra-anal plate; subgenital plate moderate, flaring, of subequal breadth and almost as broad as long, the apical margin a little elevated, broadly rounded, entire.

Length of body, ♂, 21.5 mm., ♀, 22.5 mm.; antennæ, ♂, 9? mm., ♀, 8.25 mm.; tegmina, ♂, 5 mm., ♀, 5.25 mm.; hind femora, ♂, 11 mm., ♀, 12.25 mm.

74 ♂, 80 ♀. Portland, Multnomah Co., Sept. 18; Corvallis, Sept. 15, and Philomath, Benton Co., Sept. 15; Divide (Cottage Grove), Lane Co., Sept. 12; Drain, Sept. 11, Roseburg, Sept. 10, and Glendale, Douglas Co., Sept. 9; and Grant's Pass, Josephine Co., Oregon, Sept. 8. The species was described from 43 specimens, coming from Divide, Roseburg and Grant's Pass, the others having been overlooked at the time of description.

This and the two following species form a group within the series, in which the male cerci are distinctly and considerably decurved at apex.

*Melanoplus algidus* sp. nov.

Plate IX., Figure 6.

Of medium size, moderately stout, rather dark fuscous, dull testaceous beneath, with a broad piceous or subpiceous postocular band, generally more distinct in the male than in the female, terminating at the metazona. Head not very prominent, dull testaceous, often and especially in the female with an olivaceous tinge, much obscured with fuscous especially above, the postocular band generally edged narrowly above with testaceous; vertex gently tumid, distinctly though slightly elevated above the pronotum, the interspace between the eyes about half as broad again (♂) or twice as broad (♀) as the first antennal joint; fastigium steeply declivent, broadly and scarcely sulcate; frontal costa percurrent or nearly so, subequal but faintly narrowed above, scarcely narrower than the interspace between the eyes, feebly sulcate below the ocellus, biserially punctate above; eyes moderately large, a very little prominent in the male, somewhat longer than the infraocular portion of the genæ; antennæ rufous, sometimes a little

infuscated apically, about three-fourths (♂) or two-thirds (♀) as long as the hind femora. Pronotum very feebly and gradually enlarging from in front backward, especially in the female, rather dark fuscous or fusco-testaceous, the latter particularly in the female, dull testaceous below the postocular band, the disk gently convex, feebly shouldered; median carina distinct on the metazona, rather feeble on the prozona; front margin very faintly convex, hind margin very obtusangulate, the angle rounded; prozona longitudinally (♂) or transversely (♀) subquadrate, generally about a third longer than the closely punctate metazona. Prosternal spine moderately large, slightly appressed cylindrical, blunt, erect; interspace between mesosternal lobes varying from less than half as long again as broad to more than twice as long as broad (♂) or from distinctly to very transverse but narrower than the lobes (♀), the metasternal lobes attingent (♂) or rather distant (♀). Tegmina about or hardly as long as the pronotum, attingent or in the male often feebly overlapping, broadly ovate, the tip feebly angulate (♂) or rounded (♀), hardly more than half as long again as broad, fuscous or in the female sometimes fusco-testaceous obscurely mottled with fuscous. Fore and middle femora considerably tumid in the male, testaceous more or less infuscated; hind femora testaceous, heavily angulato-bifasciate with fuscous, the geniculation fuscous, the under surface dull flavous; hind tibiae varying from dull glaucous to dull luteous (♂) or red (♀), the spines black beyond the base, 10-13, generally 11, in number in the outer series. Extremity of male abdomen strongly clavate, considerably recurved, the supraanal plate clypeate with rather abruptly and considerably elevated margins, the basal half or more subrectangular, the apical portion abruptly contracted with strongly concave sides and produced apex, which with its elevated margins is the continuation of the percurrent sharp and deep median sulcus; furcula consisting of a pair of minute pointed teeth lying on either side of the base of the median sulcus; cerci rather long and not very stout, tapering from the base to the middle and then as gradually expanding to the same width, at the middle from a half to two-thirds as broad as at base and about half as broad as the frontal costa at the ocellus, the apical portion rounded, but unequally, its lower portion being considerably produced but in no way acuminate, the whole gently incurved and nearly reaching the tip of the supraanal plate; subgenital plate moderate, distinctly flaring, gradually broadening apically, where it is nearly as broad as the length,

the apical margin a little elevated, well rounded, entire, occasionally (by accident?) feebly notched.

Length of body, ♂, 19 mm., ♀, 24 mm.; antennæ, ♂, 8.5 mm., ♀, 8 mm.; tegmina, ♂, 5 mm., ♀, 5.5 mm.; hind femora, ♂, 11 mm., ♀, 12.25 mm.

36 ♂, 36 ♀. Mary's Peak, Benson Co., Oregon, Sept. 16, A. P. Morse.

This species is very closely allied to the common Oregon species of lower levels, *M. validus* just described, differing from it mainly in the slenderness and apical roundness of the male cerci and the rounded tips of the tegmina, characters which appear to be pretty constant.

*Melanoplus debilis* sp. nov.

Plate IX., Figure 7.

Of rather small size and not very stout, rather dark fuscous, dull flavo-testaceous beneath, with a broad, subpiceous, postocular band extending to the metazona. Head moderately prominent, dull plumbeo-testaceous, more or less infuscated especially above, the postocular band margined with testaceous; vertex feebly tumid, scarcely elevated above the pronotum, the interspace between the eyes considerably broader than (♂) or nearly twice as broad as (♀) the first antennal joint; fastigium steeply declivent, distinctly (♂) or rather feebly (♀) sulcate; frontal costa just failing to reach the clypeus, subequal but generally a little narrowed above, especially in the male, fully as broad as the interspace between the eyes, more or less sulcate below the ocellus, especially in the male where it is sometimes sulcate throughout, biserially punctate above; eyes moderate, considerably prominent in the male, much longer than the infraocular portion of the genæ; antennæ castaneous, often more or less infuscated, almost as long (♂) or two-thirds as long (♀) as the hind femora. Pronotum subequal (♂) or feebly enlarging from in front backward (♀), fuscous or dark fusco-testaceous, brighter or duller testaceous below the postocular band, the disk gently convex and passing by a distinct but well rounded shoulder into the vertical lateral lobes, which are feebly tumid on the prozona; median carina feeble on the prozona, distinct on the metazona; front margin faintly convex, hind margin broadly obtusangulate; prozona longitudinally (♂) or transversely (♀) subquadrate, fully (♂) or nearly (♀) a third longer than the finely punc-

tate metazona. Prosternal spine moderate, conical, erect; interspace between mesosternal lobes nearly or quite half as long again as broad ( $\sigma$ ) or a little transverse ( $\varphi$ ), the metasternal lobes attingent ( $\sigma$ ) or not very distant ( $\varphi$ ). Tegmina about ( $\sigma$ ) or fully ( $\varphi$ ) as long as the pronotum, attingent or feebly overlapping, obovate, apically rounded, rarely in the least degree angulate, fuscous, often flecked with darker fuscous. Fore and middle femora testaceous generally more or less infuscated, moderately tumid in the male; hind femora testaceous, broadly, heavily, and on the outer face angularly bifasciate with fuscous, sometimes sharply, sometimes obscurely, the whole geniculation infuscated, the lower face dull flavous; hind tibiæ glaucous or plumbeo-glaucous, in rare instances (of either sex) either wholly or apically red, the spines black beyond the base, 10-12, usually 11, in number in the outer series. Extremity of male abdomen strongly clavate, considerably recurved, the supraanal plate with the basal portion rectangular, the apical sharply triangular, the apex being very acutangulate, all the margins a little raised, the median sulcus heavy, percurrent, but its walls fading apically; furcula wanting; cerci moderately stout and long, tapering to the middle and then similarly expanding, the median portion three-fourths as wide as the base and as wide as the narrowest part of the frontal costa, the apical portion strongly compressed, the lower outer portion produced to a triangular, bluntly acuminate lobe, the whole incurved and failing somewhat to reach the tip of the supraanal plate; subgenital plate moderate, a little flaring, subequal in breadth and nearly as broad apically as long, the apical margin slightly elevated, rounded and entire.

Length of body  $\sigma$ , 16 mm,  $\varphi$ , 19.5 mm.; antennæ,  $\sigma$ , 8 mm.,  $\varphi$ , 6.75 mm.; tegmina,  $\sigma$ , 3.5 mm.,  $\varphi$ , 4.25 mm.; hind femora,  $\sigma$ , 9 mm.,  $\varphi$ , 10.25 mm.

20  $\sigma$ , 26  $\varphi$ . Ashland, Sept. 7, and Siskiyou, Jackson Co., Oregon. Sept. 6, A. P. Morse.

This species was taken by Mr. Morse only in the extreme southern part of Oregon, being replaced farther north, even at Grant's Pass in the same water shed, by the larger *M. validus*, which it closely resembles, differing from it, however, distinctly in size and also in the lack of male furcula, the relatively shorter cerci, the more rounded form of the tegmina, and generally in the color of the hind tibiæ of the female; the eyes of the male are also more prominent and the antennæ of the same sex relatively longer.

## PLEBEJUS SERIES.

*Melanoplus marginatus*, as already stated, should be removed from this to the Texanus Series, while to it should be added a species from New Mexico, submitted to me by Mr. Morse. The table given in my Revision (p. 130) may be thus remodelled:

## TABLE OF THE BRACHYPTEROUS SPECIES IN THE PLEBEJUS SERIES OF MELANOPLUS.

*a*<sup>1</sup>. Apical portion of male cerci distinctly sulcate exteriorly.

*b*<sup>1</sup>. Hind margin of pronotum subtruncate or broadly rounded subangulate; interspace between mesosternal lobes of female transverse; male cerci apically truncate, mesially broad, hardly narrower than the base.

*calidus* sp. nov.

*b*<sub>2</sub>. Hind margin of pronotum distinctly angulate; interspace between mesosternal lobes of female at least half as long again as broad; male cerci apically rounded, mesially narrow, much narrower than the base.

*plebejus* Stål.

*a*<sup>2</sup>. Apical portion of male cerci exteriorly plane or tumid.

*b*<sup>1</sup>. Posterior margin of pronotum distinctly emarginate in the middle; tegmina widely separated; male cerci elongate, surpassing the supraanal plate; subgenital plate broader at base than apically, its apical margin regularly rounded and even ..... *gracilis* Brun.

*b*<sup>2</sup>. Posterior margin of pronotum rounded truncate, with but feeblest signs of mesial emargination; tegmina attingent or subattingent; male cerci relatively brief, not surpassing the supraanal plate; subgenital plate not broader at base than apically, its apical margin angulate or tuberculate ..... *inops* Scudd.

*Melanoplus calidus* sp. nov.

Slightly above medium size, moderately robust, testaceo-olivaceous, somewhat infuscated, beneath flavo-olivaceous with a broad subpiceous postocular band crossing the metazona. Head a little prominent, dull olivaceous feebly infuscated, above more deeply, the postocular band margined with flavo olivaceous; vertex gently tumid, distinctly elevated above the pronotum, the interspace between the eyes fully half as broad again as the first antennal joint; fastigium strongly declivent, hardly sulcate; frontal costa failing to reach the clypeus, subequal, as broad as the interspace between the eyes, feebly sulcate below the ocellus, punctate throughout, biserially above; eyes moderate, but little prominent in the male, only a little longer than the infraocular

portion of the genæ; antennæ rufous, in the female nearly three-fifths as long as the hind femora. Pronotum rather stout, expanding a little on the metazona, the disk fusco-testaceous, gently convex and passing by a distinctly angular but rounded shoulder into the vertical lateral lobes, which are dull green except for the postocular band; median carina distinct on the metazona, very feeble on the prozona; front margin subtruncate, hind margin subtruncate (♂) or broadly obtusangulate, the angle rounded (♀); prozona a little longitudinal (♂) or quadrate (♀), fully (♂) or nearly (♀) a half longer than the finely punctate metazona. Prosternal spine conical, blunt, slightly retrorse; interspace between mesosternal lobes half as long again as broad (♂) or a little transverse (♀), the metasternal lobes attingent (♂) or approximate (♀). Tegmina slightly longer than the pronotum, overlapping, apically acuminate, fusco-testaceous. Fore and middle femora somewhat tumid in the male, olivaceous testaceous; hind femora moderately stout, clouded exteriorly with fusco-olivaceous margined below with flavous, the inner and lower faces flavous or rosaceous, the former banded interruptedly with flavous and blackish fuscous, the geniculation blackish fuscous; hind tibiæ red (♂) or glaucous (♀), the spines black except basally, 10 (♀) or 12 (♂) in number in the outer series. Extremity of male abdomen clavate, considerably recurved, the supraanal plate large, clypeate, the margins scarcely elevated, the median sulcus distinct and deep, narrowing to a point a little beyond the middle, its walls low; furcula consisting of a pair of thickened disks with slight diverging points, barely extending beyond the margin of the last dorsal segment; cerci large, rather stout, quadrangular plates of subequal width, contracted slightly in the middle, the apex truncate, with its angles, and especially the lower, slightly rounded, the whole but little more than twice as long as broad, lying in a vertical plane, but a little incurved, and the outer face of the apical half a little depressed; subgenital plate not very large, moderately narrow, but the apical margin considerably elevated, rounded angulate as seen from behind, entire.

Length of body, ♂, 20 mm., ♀, 21.75 mm.; antennæ, ♀, 7.5 mm.; tegmina, ♂ ♀, 6 mm.; hind femora, ♂ ♀, 10 mm.

1 ♂, 1 ♀. Gilman's Ranch, Eagle Creek, White Mts., Lincoln Co., New Mexico, 7000 feet, August 10-16, E. O. Wooton (A. P. Morse).



## ASEMOPLUS Scudder.

To this supposedly monotypic genus, Walker has added a new species from the same general region as the type. It is wholly apterous and hence the generic description needs to be in so far modified, as well as the table of the genera in my Revision (p. 12) where the category  $A^2 B^2 C^2 D^2 E^1 F^1$  should read: Tegmina rarely absent (instead of always present); and further in the final category for *Asemoplus* (p. 14) the words "when present" should be added after the word "tegmina." The two species may be separated thus:

## TABLE OF THE SPECIES OF ASEMOPLUS.

Tegmina normally present;* abdomen mesially striped above with yellowish; male cerci reaching as far back as the tip of the supraanal plate, slightly decurved at tip .....	<i>montanus</i> Brun.
Tegmina wanting; abdomen mesially striped above with black; male cerci scarcely reaching so far back as the tip of the supraanal plate, in no way apically decurved.....	<i>nudus</i> Walk.

\*They are sometimes absent from one side or the other, apparently by accident; out of fourteen specimens seen only one had them absent on both sides.

*Asemoplus nudus.*

*Asemoplus nudus* Walk.! Can. Ent., XXX., 197-199, pl 6 (1898).

Near Sandon, British Columbia, 2600 feet, and Mt. Piron, near Laggan, Alberta, 7000 feet.